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The EDISON ELECTRIC INSTITUTE BULLETIN

GEOGRAPHY & INDUSTRY

October 1956

General and Engineering Committee Plans for 1956-57

Industry Teamwork and Fair Play

Donald S. Kennedy

Building for the Future

Norman R. Sutherland

Management Key Indicators

A. Paul Thompson

Meter, Service Committee

Published Monthly by Edison Electric Institute

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities)

July, 1955-1956

SOURCE AND DISPOSAL OF ENERGY—MONTH OF JULY

	1956	1955	%
NET GENERATION* (Kwhrs in Thousands)			
By Fuel Burning Plants	39,538,543	37,418,887	+ 5.7
By Water Power Plants	9,912,883	9,326,780	+ 6.3
Total Generation	**49,451,426**	**46,745,667**	**+ 5.8**
Add—Net Imports Over International Boundaries	428,894	262,539	+63.4
Less—Company Use	133,817	127,922	+ 4.6
Less—Energy Used by Producer	1,433,224	1,281,218	+11.9
Net Energy for Distribution	**48,313,279**	**45,599,066**	**+ 6.0**
Lost and Unaccounted for	5,303,616	5,944,746	−10.8
Sales to Ultimate Customers	**43,009,663**	**39,654,320**	**+ 8.5**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of July 31st			
Residential or Domestic	45,097,739	43,839,021	+ 2.9
Rural (Distinct Rural Rates)	1,686,608	1,638,914	+ 2.9
Commercial or Industrial:			
Small Light and Power	6,118,293	6,045,011	+ 1.2
Large Light and Power	293,739	284,580	+ 3.2
Other Customers	172,261	168,619	+ 2.2
Total Ultimate Customers	**53,368,640**	**51,976,145**	**+ 2.7**
KILOWATTHOUR SALES—During Month of July (Kwhrs in Thousands)			
Residential or Domestic	10,494,878	9,262,300	+13.3
Rural (Distinct Rural Rates)	1,201,088	1,159,917	+ 3.5
Commercial or Industrial:			
Small Light and Power	7,800,506	7,061,168	+10.5
Large Light and Power	21,857,602	20,647,261	+ 5.9
Street and Highway Lighting	334,537	305,159	+ 9.6
Other Public Authorities	936,217	834,471	+12.2
Railways and Railroads:			
Street and Interurban Railways	179,304	179,809	− 0.3
Electrified Railroads	148,761	154,913	− 4.0
Interdepartmental	56,770	49,322	+15.1
Total to Ultimate Customers	**43,009,663**	**39,654,320**	**+ 8.5**
Revenue from Ultimate Customers (Thousands)	**$719,799**	**$661,381**	**+ 8.8**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 Months Ended July 31, 1956			
Kilowatthours per Customer	2,899	2,662	+ 8.9
Average Annual Bill	$75.66	$70.81	+ 6.8
Revenue per Kilowatthour	2.61¢	2.66¢	− 1.9

* By Courtesy of the Federal Power Commission.

THE EDISON ELECTRIC INSTITUTE BULLETIN is published monthly by the Edison Electric Institute, an association of electric light and power companies in the United States and its territorial possessions. Its affiliate members consist of members of the Canadian Electrical Association.

The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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Closing date for the BULLETIN is the tenth of the month preceding the month of issue.

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The EDISON ELECTRIC INSTITUTE BULLETIN

October, 1956

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CONVENTIONS AND MEETINGS

1956

NOVEMBER

1- 2 EEI Accounting Division Advisory and Executive Committee, Hotel Statler, St. Louis, Mo.

1- 2 EEI Electric Space Heating & Air Conditioning Committee, Sheraton Lincoln Hotel, Indianapolis, Ind.

1- 2 PEA Transmission and Distribution Committee, Shenango Inn, Sharon, Pa.

2 EEI Sales Personnel & Training Committee, EEI Headquarters, New York, N. Y.

8 EEI Commercial Division Executive Committee, New York City, N. Y.

8- 9 EEI Commercial Lighting Committee, Shoreham Hotel, Washington, D. C.

8- 9 EEI Residential Group Chairmen, St. Louis, Mo.

12-16 NEMA Meeting, Traymore Hotel, Atlantic City, N.J.

14-15 Pacific Coast Electrical Association Administrative Services Section, Hotel Biltmore, Santa Barbara, Calif.

15 EEI Industrial Relations Committee, EEI Headquarters, New York, N. Y.

15 ECAP Management Meeting, St. Regis Hotel, New York City

15-16 EEI Industrial Power & Heating Group, Statler Hotel, Detroit, Mich.

25-30 ASME Annual Meeting, Hotel Statler, New York, N. Y.

26-27 EEI-AGA General Accounting Committees, Henry Grady Hotel, Atlanta, Ga.

26-28 EEI Accident Prevention Committee, Statler Hotel, Hartford, Conn.

DECEMBER

3- 4 EEI-AGA Plant Accounting Committees, Hotel Carter, Cleveland, Ohio

3- 5 EEI-AGA Electronics Seminar, Netherlands Hilton Hotel, Cincinnati, Ohio

6- 7 EEI-AGA 1957 Accounting Conference Planning Committee, EEI-AGA Headquarters, New York, N. Y.

6- 7 EEI Street Lighting Committee, Dayton, Ohio

13-14 EEI Commercial Electric Cooking and Water Heating Committee, Cleveland, Ohio

13-14 EEI-AGA Customer Accounting Committees, Hotel Roosevelt, New Orleans, La.

13-14 EEI-AGA Customer Collections Committees, Jung Hotel, New Orleans, La.

13-14 EEI-AGA Customer Relations Committees, Jung Hotel, New Orleans, La.

1957

JANUARY

14-15 AIEE 3rd National Symposium on Reliability and Quality Control in Electronics, Hotel Statler, Washington, D. C.

17-18 EEI Industrial Relations Committee, jointly with Personnel Section of Southeastern Electric Exchange, Sheraton Park Hotel, Washington, D. C.

17-18 EEI Industrial Power & Heating Group, New Orleans, La.

31-Feb. 1 Missouri Valley Electric Association Industrial and Commercial Sales Conference, Hotel President, Kansas City, Mo.

FEBRUARY

4- 6 EEI Prime Movers Committee, Deschler Hilton Hotel, Columbus, Ohio

7- 8 EEI-AGA 1957 Accounting Conference Final Working Committee Meeting, Sheraton Belvedere Hotel, Baltimore, Md.

7- 8 EEI Transmission and Distribution Committee, Netherland Plaza Hotel, Cincinnati, Ohio

11-12 EEI Electrical System and Equipment Committee, Somerset Hotel, Boston, Mass.

28-March 1 Pacific Coast Electrical Association Business Development Section, Sheraton-Palace Hotel, San Francisco, Calif.

MARCH

18-20 Northwest Electric Light and Power Association Business Development Section, Empress Hotel, Victoria, B. C.

21 EEI Industrial Relations Committee, Headquarters, New York, N. Y.

21-22 Pacific Coast Electrical Association Engineering and Operating Section, Hotel Statler, Los Angeles, Calif.

28-29 Oklahoma Utilities Association Annual Convention, Tulsa, Okla.

The EDISON ELECTRIC INSTITUTE
BULLETIN

EEI General, Engineering Committees Announce Programs For 1956-57

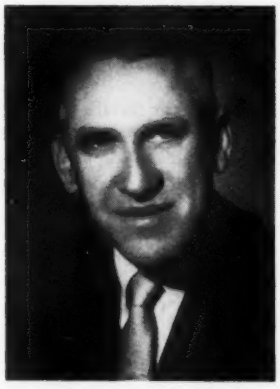
THE continuous, day-by-day progress of the electrical industry may not seem spectacular when compared to the deliberately staged presentations of new services of other industries. Only a study of statistics can give the true picture of the constant progress, expansion, improvement within this industry.

Just as these advancements have become accepted — and expected — with a minimum of fanfare, so do approximately 1,720 of the industry's leaders and potential leaders serve the 61 EEI Committees without personal acclaim to help make these achievements possible. In fact committee work hardly can be labeled more than "a labor of love."

With the steady increase of outside pressures and with expansion programs hitting a record peak, committee work has become more than ever an "extra-curricular" but nonetheless important activity. Most of the achievements are accomplished in other than "normal office hours" and many times at the members' own expense.

Personal satisfaction largely is the committeeman's reward. If a committee is responsible for greater efficiency in generation, transmission and distribution, in simplified accounting procedures, in reduced insurance rates, it benefits from the knowledge that it has helped achieve the purpose. This does not involve personal or company gain, but a wide-reaching gain for the entire electric industry.

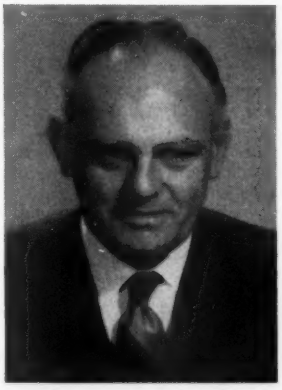
The importance of committees can be appreciated by a glance at the records for 1955-56 and those for the current administrative year. In 12 months, the number of EEI Committees has increased from 54 to 61 and



DONALD S. KENNEDY
Chairman of the Board of Directors and Institute President

the members serving them from more than 1,500 to about 1,700. They are drawn from companies throughout the country and work with selfless dedication to improve the industry's services so these services may be passed on to nearly every man, woman and child in the nation.

Countless economic advancements



J. W. MCAFEE
Chairman of the General Division Executive Committee

of the past decades can be traced directly to the conference tables of Edison Electric Institute through which is pooled, via committees, and disseminated the knowledge of the top men in the electric industry.

With the endless developments within the industry coupled to its struggle to secure fair treatment as a free enterprise, the importance of these committees stands to assume still greater proportions year by year.

Committees of Edison Electric Institute are supervised by the EEI Board of Directors, under the chairmanship of Donald S. Kennedy, President of the Institute. Chief executives of member companies largely make up the staff of the Board. One-third of the members are elected for three-year terms. The Advisory Committee, also composed mostly of member-company executives, acts as a consultant to the Institute on matters of industry policy.

Presented briefly here is a survey of activities scheduled by the General Committees and Engineering and Operating Division Committees for the administrative year 1956-57. A similar survey of Accounting and Commercial Division plans will be presented in the November BULLETIN.

General Division Executive Committee

The General Division Executive Committee exercises general supervision over the work of the General Division Committees, coordinating their respective activities. In addition, this committee acts as a policy committee for the Institute's Board of Directors in matters pertaining to Codes and Standards, Research, Safety, and EEI committee organization and functions.

The Vice President of the Institute

is chairman of this committee and, therefore, J. W. MCAFEE, President of Union Electric Co., heads the committee for the 1956-1957 administrative year. Other members of the committee, all on the Board of Directors, are: E. W. DOEBLER, President, Long Island Lighting Co.; C. E. KOHLHEPP, President, New Jersey Power & Light Co.; and D. C. LUCE, President, Public Service Electric and Gas Co.

EEI General Committees

Accident Prevention Committee

The Accident Prevention Committee, under the chairmanship of RAYMOND W. WHITE, Pacific Gas and Electric Co., is continuing to streamline its functions. The activities of this committee necessarily cut across practically all aspects of the industry. New procedures are being developed to achieve maximum results with minimum expenditure of time of its members. This will permit continued handling of present functions, and assure the proper handling of new activities.

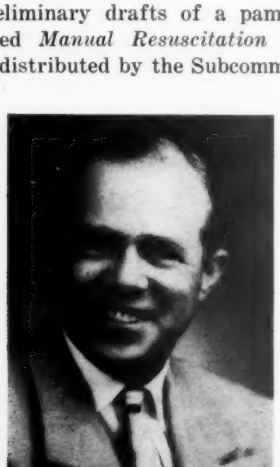
A study is being made of the present method of reporting accident statistics to determine whether further improvement can be achieved, especially with a view toward making available information useful to other EEI committees.

The committee is initiating study on the subject of protection of production personnel at atomic energy power plants. The preliminary aim is to develop a background and understanding of the subject so that the committee can give accident prevention advice to other EEI committees and to the industry.

Preliminary drafts of a pamphlet entitled *Manual Resuscitation* have been distributed by the Subcommittee on Resuscitation to members of the full committee. Arrangements are now being made to appoint a panel of physicians to review the pamphlet, and also the work being done at Johns Hopkins University by Dr. W. B. Kouwenhoven and others on a method of electrical resuscitation to overcome ventricular fibrillation resulting from electric shock. While no final solution has been reached, it appears that considerable accomplishments have been made, and it is now desired to have the medical profession review these accomplishments of the committee.

Consideration is being given to activating a publicity subcommittee through which publication of articles on the subject of accident prevention in the electric utility industry in national trade magazines can be promoted.

Active cooperation between the Accident Prevention Committee and other EEI committees has been continued, with frequent exchange of speakers and development of subjects of mutual interest. The committee's membership has gradually expanded to permit adequate regional representation of all major areas of the nation. The new meeting schedule of twice instead of three times per year has been tried with success and now appears to be a permanent arrangement.



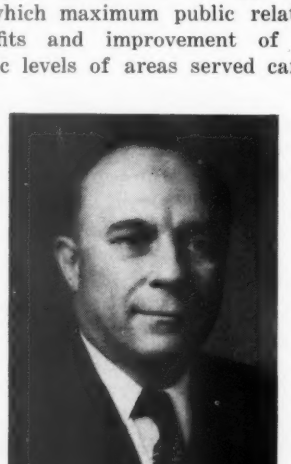
RAYMOND W. WHITE
Chairman of the Accident Prevention Committee

Chairman RAYMOND W. WHITE has been Manager of the Claims and Safety Department, Pacific Gas and Electric Co., since 1946, having started with the company in 1933. He was employed full time with PG&E while attending college and law school, where he received an LL.B. degree. He has worked in various departments of PG&E including Bookkeeping, Gas, Law, and the Claims and Safety Department. A member of the EEI Accident Prevention Committee since 1946, Mr. White has been active in Pacific Coast Gas and Pacific Coast Electrical Associations, and is a past chairman of the Accident Prevention Committee of the latter association. He is also active in various other organizations including California Self-Insurers Association, California State Chamber of Commerce, and the Transportation, Communications and Utilities Section of California Industrial Safety Conference.

Area Development Committee

The Area Development Committee, under chairman J. R. FREDERICK, Wisconsin Power and Light Co., has as its major objective the studying, compiling, and exchanging of information regarding area development work by EEI member companies, so as to be of maximum benefit to each company in its own activity. The majority of electric companies are now engaged in activities in some of the various phases of area development, so interest in the work of the committee and the exchange of information has increased greatly. The area development workshops, a major activity of the committee, provide an opportunity for the first-hand exchange of ideas and information designed to help all utility area development people—both new and old—to do a better job.

During the coming year, specific area development problems of interest to a majority of utilities will be studied to determine the approaches by which maximum public relations benefits and improvement of economic levels of areas served can be



J. R. FREDERICK
Chairman of the Area Development Committee

obtained. The committee's program will include consideration of these problems and the dissemination of information to assist in solving these problems.

The committee met in Minneapolis on October 3 for an organization session at which assignments for the administrative year were made. This meeting was held in conjunction with the Area Development Workshop held the following two days. This workshop under the leadership of S. F. McGOWAN, Northern States Power Co., consisted of addresses by prominent authorities from both within and without the industry. Also, much time was devoted to round table discussions and panels for the free exchange of information on the various subjects. With the theme *Planned Progress Through Area Development,* this year's workshop was designed to present information useful in setting up and evaluating area development activities.

The preparation of information and materials which members would like to help in their area development problems is an over-all objective of the committee. This will be attacked by consideration of the following items:

1. An area development motion picture approached from the utility standpoint and designed for electric company use.
2. Preparation of a booklet for electric company use which includes text for direct quotation and also for guidance in the preparation of hand-out pieces for distribution by individual companies.
3. Locating of new business and development of industry using techniques to improve the service area economy.
4. Zoning and re-zoning problems for community development and redevelopment, considering the electric company's interest in providing for its system.
5. Agricultural development from the utility's standpoint considering best approaches to the conservation problems of soil and water.
6. Natural resources and their development to improve economic health.
7. Working with communities for their improvement and development and making them attractive to business and industry.
8. Cooperation with area people on travel, tourist, and recreation development.

This exchange of information, and the development and preparation of materials, will be designed for use in the training of area development personnel, in assisting in setting up company activity in the field, and in evaluating the various segments of area development.

E. H. DIXON
Chairman of the Atomic Power Committee

Chairman JOHN R. FREDERICK, in his capacity as Director of Industry Development for Wisconsin Power and Light Co., heads his company's area development work. A graduate of Armour Institute of Technology, he was a cadet trainee in the Chicago Central Station Institute prior to joining the Wisconsin company in 1926 as a cadet engineer. He has subsequently held the positions of assistant district manager, industrial power sales engineer, commercial and industrial engineering supervisor, and since 1949 director of industry development. Long active in EEI committee work, he is a registered Professional Engineer and is Wisconsin chairman of the Student Guidance Committee of Engineers Council for Professional Development.

Atomic Power Committee

Since passage of the Atomic Energy Act of 1954, which enabled industry for the first time to participate on its own initiative in the development of atomic power, there has been a continuing growth in the significance and scope of activities in this field. In keeping abreast of and anticipating developments in this area, the Committee on Atomic Power, under the chairmanship of E. H. DIXON, President of Middle South Utilities, Inc., has had one of its busiest years since its formation.

In March of 1956 a presentation was made by E. L. LINDSETH of the the Committee on Atomic Power, on behalf of the Institute, before the Joint Congressional Committee on Atomic Energy at that Committee's invitation. Hearings were held to consider comments on a report to the Joint Committee of the Panel (McKinney Panel) on the Impact of the Peaceful Uses of Atomic Energy. The present industry programs of atomic development were generally supported by the Institute. Proposals for the government to engage in construction of large-scale power reactors were opposed. Deletion of preference provisions in the Atomic Energy Act of 1954 were advocated.

In May of 1956 Mr. Lindseth made two presentations before the Joint Committee on Atomic Energy on behalf of the Institute, both of which were at the invitation of that Committee. On May 16, the concept of government liability indemnity for atomic plants was endorsed by the Institute, and on May 24 strong opposition was voiced against the so-called Gore Bill that, in its final form, would have authorized the Atomic Energy Commission to construct several large-scale and a number of small-scale nuclear power plants.

On June 6 the Committee on Atomic Power, in its meeting at Atlantic City during the 1956 EEI Convention, made recommendations to the EEI Board of Directors which were adopted by the Board in the form of resolutions, along the following lines:

1. That EEI establish on a continuing basis a Technical Appraisal Task Force on Nuclear Power for the purpose of reviewing various reactor types and designs, and recommending to member companies of EEI those reactor types and designs which appear to have promise of feasibility for production of electric power.

2. That EEI favor formation of a national evaluation group to provide a continuing means for scientific, engineering and economic evaluation of power reactor types and designs.

3. That EEI hold a conference of utility company presidents at an early date for the purpose of reviewing the atomic power pro-

gram in the United States, particularly the role of investor-owned companies.

4. That EEI appoint a full-time executive secretary of the Committee on Atomic Power.

After the adoption of these resolutions the Committee undertook the organization of the Task Force and the preparation of a comprehensive program for the utility companies' Presidents Conference. At this conference, held on September 19 in New York City, the Task Force Chairman and the other electric utility company Task Force members were announced. JAMES F. FAIRMAN, Vice President of the Consolidated Edison Co. of New York Inc., was named Chairman. Appointed as members of the Task Force were, JAMES B. BLACK, Chairman of the Board of the Pacific Gas and Electric Co.; WALKER L. CISLER, President and General Manager of the Detroit Edison Co.; HERBERT J. SCHOLZ, President of Southern Services, Inc.; PHILIP SPORN, President of American Gas and Electric Co., and WILLIAM WEBSTER, Executive Vice President of the New England Electric System. In addition to these members, independent nuclear engineers and scientists are to be named to the Task Force.

The Conference had the largest attendance of any in recent years, and was considered to be of genuine benefit to the entire industry.

Looking ahead, the committee plans to continue its surveillance of the atomic power field, prepare policy recommendations to the EEI Board of Directors when appropriate, and represent the Institute in matters pertaining to atomic power when so requested by the Board of Directors.

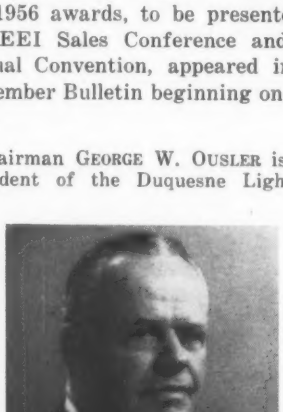
Chairman E. H. DIXON has been President and Director of Middle South Utilities, Inc., since 1949, when it was formed following the reorganization of Electric Power & Light Corp. He had been president of the latter company since 1944, having served it and the United Gas Corp., both units in the Electric Bond & Share Co. system, as secretary, treasurer, vice president and director. Mr. Dixon participated in the formation of Electric Energy, Inc., and is now serving as a director of that company. He has been active in EEI work for a number of years and at present is a member of the EEI Advisory Committee in addition to being Chairman of the Committee on Atomic Power.

GEORGE W. OUSLER
Chairman of the Awards Committee

Awards Committee

The Awards Committee, which has as its chairman G. W. OUSLER, Duquesne Light Co., administers all Institute-sponsored award competitions with the exception of the Charles A. Coffin Award and the Reddy Kilowatt Annual Report Awards. The committee publicizes and promotes each competition in order to stimulate the widest possible participation. It appoints the judges for the various competitions, and announces the winners in each competition. It is also the responsibility of this committee to review all new awards offered for EEI-sponsorship. Details concerning the 1956 awards, to be presented at the EEI Sales Conference and the Annual Convention, appeared in the September Bulletin beginning on page 317.

Chairman GEORGE W. OUSLER is Vice President of the Duquesne Light Co. Following his graduation from Massachusetts Institute of Technology in 1916, he entered the employ of the engineering department of Duquesne Light where his subsequent positions in engineering and sales capacities included those of director of sales engineering, manager of rates and retail sales, and general sales manager. He was named vice president in charge of sales in 1942. Long active in EEI committee work, Mr. Ousler served for two years as Commercial Division Chairman. He is also a former president of the Pennsylvania Electric Association.



HARVEY E. BUMGARDNER
Chairman of the Committee on Technical Assistance for Overseas Visitors

Committee on Technical Assistance for Overseas Visitors

The Committee on Technical Assistance for Overseas Visitors, which will be under the chairmanship of HARVEY E. BUMGARDNER, The Detroit Edison Co., was organized in July, 1954, to assist on an industry-wide basis in the preparation of suitable programs for visits to the electric power companies in this country of groups or persons associated with power systems in overseas countries. It cooperates with the International Cooperation Administration and other organizations concerned with phases of technical exchange programs for overseas electric power visitors.

Through its programs, overseas electric people make permanent contacts which are useful in securing up-to-date information on management, engineering and other practices of member companies. It assists executives of EEI member companies in making contacts for overseas visits with electric power people.

Member companies are contacted for their cooperation as participants in technical exchange programs and for designation of a contact person for such matters.

Chairman HARVEY E. BUMGARDNER, Assistant to the President, The Detroit Edison Co., also serves his company as coordinator of technical exchange programs. A University of Michigan graduate, he joined Detroit Edison in 1924 as a junior engineer and two years later became research engineer in charge of the Mechanical Division, afterwards serving in various management capacities until assuming his present position. Mr. Bumgardner is a consultant to the International Cooperation Administration and in that capacity visited Europe in 1952 and 1954 to inspect the operations of Great Britain's Central Electricity Authority and to study ICA's accomplishments. He is past chairman of the Detroit Section of the ASME and a member of the Engineering Society of Detroit, American Management Association and National Industrial Conference Board.

Electric Power Survey Committee

The function of the EEI Electric Power Survey Committee is to provide detailed, up-to-date information concerning:

(1) The present and future electric power supply situation in the United States.

(2) The status of heavy electric power equipment manufacture, as related to present and future expansion programs and plans of the nation's electric power systems.

Membership of the Electric Power Survey Committee, which is headed by ARTHUR S. GRISWOLD of The Detroit Edison Co., is widely distributed geographically. Thus, familiarity of specific members with local situations in their own regions gives nationwide balance to the survey group.

Cooperating with the committee are representatives of power systems or power areas throughout the country, who furnish detailed data. Information concerning equipment manufacture is supplied regularly to the Subcommittee on Manufacturing by the nation's principal producers of heavy electric power equipment.

Comprehensive surveys are made twice each year to establish—both for summer and winter conditions—forecasts of peak generating capabilities, peak loads, gross margins, and energy requirements in all parts of the country. In each instance, these forecasts extend approximately four years ahead. In addition, the surveys determine the program of expansion of generating facilities based on the current schedules for bringing new generating units into commercial operation.

The ever-increasing growth of electric power requirements places increasingly heavier demands on the manufacturers of heavy power equipment. To provide a full understanding of the demand and potential supply of such equipment, the Subcommittee on Manufacturing maintains running records of the schedules of production of steam-turbine generators, generators for hydraulic turbines, steam generators, hydraulic turbines, and power transformers. With the aid of the manufacturers, the subcommittee also establishes estimates of open manufacturing capacity available for the production and delivery of additional equipment over and above that

ARTHUR S. GRISWOLD
Chairman of the Electric Power Survey Committee

on order. In this manner the overall adequacy of manufacturing facilities to meet the requirements of the power systems can be carefully watched. This information is helpful to the power systems in determining the possibilities of delivery for equipment not yet ordered and it is also valuable to the manufacturers in planning expansions of their production facilities.

Reports of the committee's semi-annual surveys, conducted as of April 1 and October 1 of each year, present summaries of the expected power situation in the eight power supply regions of the country, as defined by the Federal Power Commission, and for the country as a whole. Data are shown for summer and winter and for median and adverse hydro conditions. The peak summaries include forecasts of peak capabilities, peak loads, gross margins and energy output. The Nineteenth Semi-Annual Survey of April 1956 covered the period extending through the year 1959.

These reports also set forth the program of expansion of generating facilities according to construction schedules at the time of the survey, and list individually all generating units included in the program showing the name of the power system, type and rating of the unit, class of ownership and scheduled date of commercial operation.

The section of the report dealing with equipment manufacture presents the scheduled production, by years, of equipment for the U.S. electric power systems, U.S. industrials, and for customers outside the United States. Thus the data represent the total manufacturing commitments. Historical data concerning equipment production also are included.

In addition to its semi-annual reports, the committee issues quarterly status reports giving detailed information concerning the expansion program and equipment manufacture, and occasionally issues interim reports, as of January 1 and July 1, bringing up to date the preceding semi-annual report.

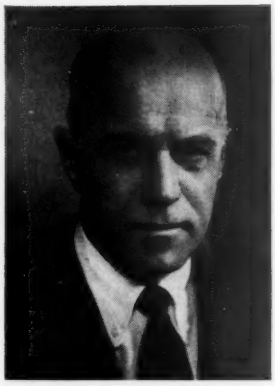
Information in the hands of the committee is considered to be the most complete of its kind in existence. The advantage of the activity is that the industry is regularly and promptly supplied with up-to-date information important both to the power systems and to the equipment manufacturers. The work of this committee and the methods of presenting information in its reports have served as a pattern for similar activities in other countries including Canada, Japan and several of the nations of Western Europe.

Apart from the committee operations described above, a Subcommittee on Continuity of Service Protection under the chairmanship of PAUL W. METCALF, Narragansett Electric Co., is concerned with matters of Civil Defense as they relate to the operation of the electric power systems. This subcommittee, among other things, keeps in touch with the planning, organization, and operations of civil defense agencies in various parts of the country and serves as a clearing house for information of this nature.

Chairman ARTHUR S. GRISWOLD is Assistant to the President at The Detroit Edison Co., with which he has been associated since graduating from Cornell University as a mechanical engineer in 1922. During World War II, he served for three and one-half years with the WPB Office of War Utilities as the chief of the Turbine and Condenser Section, the Equipment Division. Since 1948 he has been active in the power aspects of government technical assistance programs. As assistant to the president of Detroit Edison, he is responsible for management of the company's activities in atomic energy development.

Financing and Investor Relations Committee

The purpose of the Financing and Investor Relations Committee, which is under the chairmanship of W. J. ROSE, American Gas and Electric



W. J. ROSE
Chairman of the Financing and Investor Relations Committee

Service Corp., is to keep the EEI member companies abreast of developments relating to financial matters.

With the drastic change in interest rates which has recently occurred, coupled with the continued need for new capital by the electric utility industry to meet its costs of expansion, it becomes essential that all pertinent financial information be made available as promptly as possible. This the committee will attempt to do.

During the coming year a meeting of the full committee will be held. It is hoped that arrangements can be made to hold a financial forum for representatives of both the EEI membership and the financial fraternity to meet for informal discussions.

Chairman W. J. ROSE, Vice President and Secretary of American Gas and Electric Co., was named secretary in 1949 and vice president in 1952. He is also vice president, secretary and a director of AGE Service Corp. and the company's subsidiaries. Prior to joining AGE in 1938. Mr. Rose was with Stone & Webster Securities Corp. and also Stone & Webster Service Corp. Prominent in financial circles, he has been chiefly responsible for all the major financing operations carried out in recent years by American Gas and Electric and its subsidiaries.

Industrial Relations Committee

The Industrial Relations Committee for the second year under the chairmanship of JOHN C. ARNELL, Director of Industrial Relations at Consolidated Edison Co. of New York, Inc., will continue its present program of stimulating advance planning by providing EEI member companies with current information on significant developments in the dynamic field of industrial relations, and by providing for these member companies a means for interchanging information. Meetings, conferences and surveys will continue to be the basic media for rendering the committee's service.

The committee has enhanced the benefits derived from attendance at its regular meetings by scheduling, in addition to the regular business, special presentations at each meeting on matters of current interest and stimulating open discussion of the subjects by the members and their guest specialists. Record attendance at meetings during the past year justifies the continuation of this added feature. During the past year, those attending the meetings heard presentations on such matters as wage comparisons in negotiations and arbitration, supervisory indoctrination, short term versus long term contracts, executive health, and organization planning.

The committee this year has programmed a series of eight meetings, three of which are regular meetings for Industrial Relations Committee members and their guests. In addition to special presentations at these meetings, developments in collective bargaining and industrial relations are discussed and the regular business of the committee is transacted. Three other meetings will be jointly sponsored with Regional Personnel Groups. During the administrative year 1956-57, two-day meetings will be co-sponsored with the Personnel Sections of the Wisconsin Utilities Association and North Central Electric Association, the Southeastern Electric Exchange, the Ohio Electric Utilities Institute and the Pennsylvania Electric Association. These two-day meetings will follow the pattern of former meetings, where the first day is devoted to a formal program of interest to both co-sponsors. The second day is given over to individual committee meetings. The EEI Industrial Relations Committee invites representatives of the regional groups to sit in as guests at its meetings. The traditional joint dinner meeting with the Personnel Relations Committee of the American Gas Association will be held again next February. These joint meetings help to give the members of the regional groups an opportunity to acquaint themselves with individual members of the national group and their thinking, and vice versa. The feature meeting of the eight-meeting program is the Annual Round Table Conference. This Annual Conference has become increasingly popular as an opportunity for operating and industrial relations people of our industry to get together and discuss problems on a national basis. More than 300 operating, administrative, and industrial relations executives were present at the 1956 Conference held in Chicago, at which the theme was: "Preparing Today for Tomorrow's Problems." The Conference is a three-day meeting. On the first day four speakers, prominent in industrial relations in our industry, present the basic philosophy on four topics which are the subject of "How To Do It" discussion groups on subsequent days. Eminent utility executives bring valuable messages to the Conference at the luncheon meetings held each day.

JOHN C. ARNELL
Chairman of the Industrial Relations Committee

The Industrial Relations Committee looks forward to an active year. Developments in collective bargaining, legislation, court and NLRB rulings, automation, and the AFL-CIO merger will keep the industrial relations field in dynamic state. The committee urges all member companies to be alert to significant developments through maximum use of the services of the Industrial Relations Committee.

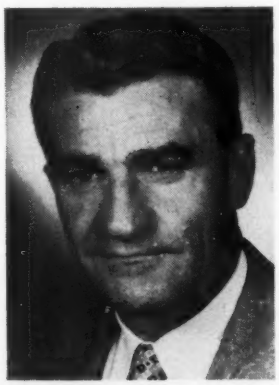
Chairman JOHN C. ARNELL, Director of Industrial Relations, Consolidated Edison Co. of New York, Inc., was employed by a predecessor company in 1926 following his graduation from Polytechnic Institute of Brooklyn. Most of his 29 years with the Consolidated Edison system have been devoted to industrial and labor relations, and he has been active in collective bargaining re-

lationships since the establishment of the first bargaining unit in the system more than 20 years ago. He has served for ten years with the Engineers' Council for Professional Development, and for two years was chairman of the Committee on Professional Training. During World War II, Mr. Arnell served as an Industry Panel Member of the Regional War Labor Board. He is a member of the American Academy of Political and Social Science, Industrial Research Association, and the Social Legislation and Labor Relations Committees of the Empire State Chamber of Commerce.

Insurance Committee

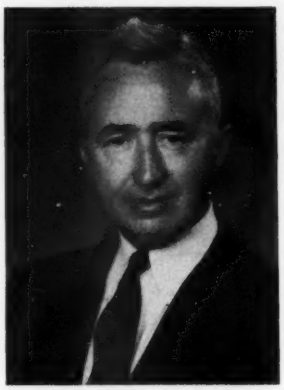
The Insurance Committee concerns itself with all developments in the field of insurance, and is particularly interested not only in keeping informed of improved coverages, but also in promoting the expansion of markets along the lines of increasing interest to the utility industry. Chairman of this committee is ROBERT D. CONSTABLE, Niagara Mohawk Power Corp.

Following a long period of relatively stable and somewhat standardized handling of insurance coverages throughout the electric utility industry, the past few years appear to have developed a trend toward a fresh and revised approach to what should comprise an ideal program in this field. Many companies are showing less concern over protecting themselves against relatively small losses, and more concern over broader coverage against major or catastrophic occurrences, whether involving damage to their own plant or to the persons or property of others. The insurance industry has been responding slowly to this developing demand, but much progress remains to be made.



R. D. CONSTABLE
Chairman of the Insurance Committee

Chairman R. D. CONSTABLE has been Manager, System Insurance, of Niagara Mohawk Power Corp. since 1942 in which capacity his responsibilities include the fields of group insurance and pensions as well as general insurance. Prior to entering the utility business he had been in the fire insurance field for some 15 years as special or state agent in New York State, following earlier home office training in New York City. He is a recent past Chairman of the Insurance Committee of the AGA and a member of the Workmen's Compensation Committee of Associated Industries of New York State.



JOHN M. KEEGAN
Chairman of the Legal Committee

The committee operates mainly through subcommittees covering various areas of interest but generally meets as a whole twice a year. A very successful meeting was held in March at Atlanta, Georgia, and the fall meeting held October 22-23 at Hot Springs, Va., presented the following items of special interest:

1. A subcommittee report on a proposed continuing survey to develop more complete data on insurance practices and trends throughout the industry.
2. A discussion of how best to develop the committee's interest in fire prevention and protection and coordinate it with the similar interest of other Institute Committees.
3. An explanation and discussion of the Premium Adjustment Plan in boiler and machinery insurance conducted by one of the leading underwriters in this field.

Legal Committee

The Legal Committee, the chairman of which is JOHN M. KEEGAN, Consolidated Edison Co. of New York, Inc., was created to study and exchange information pertaining to matters handled by counsel for the participating companies. In addition, in the past the Committee has followed the practice of studying and reporting on to the Institute particular matters which may be referred to it by the Institute or by any other of the Edison Electric Institute Committees. It is proposed to continue this practice.

A conference on claims which was held October 18 and 19 in New York City was attended by more than 90 claims men from member companies.

The next meeting of the Legal Committee will be held in late November, and the agenda for that meeting is now in preparation.

Chairman JOHN M. KEEGAN has been General Attorney for Consolidated Edison Co. of New York, Inc., since 1950. He entered the employ of the company in 1927 as an electrical tester, and subsequently held various positions in the Distribution Engineering and System Operations Departments. Mr. Keegan received his LL.B. in 1935 and his LL.M. in 1936 from St. John's University. He is a member of the New York State and American Bar Associations, and has been a member of the EEI Legal Committee since its organization in 1950.

Membership Committee

The Membership Committee, under the chairmanship of EARLE S. THOMPSON, The West Penn Electric Co. (Inc.), receives and examines applications for membership in the Institute. The committee makes its recommendations and reports directly to the EEI Board of Directors.

Chairman EARLE S. THOMPSON is President and a Director of The West Penn Electric Co. (Inc.) He was with the National Fire Insurance Co. and

EARLE S. THOMPSON
Chairman of the Membership Committee

Hornblower & Weeks before joining the American Waterworks and Electric Co. in 1923. In 1938 he was elected president and a director of the latter company, predecessor to West Penn Electric. Among the companies of which Mr. Thompson is a director are Monongahela Power Co., Potomac Edison Co., Windsore Coal Co., West Penn Railways, City Bank Farmers Trust Co., and the Ritz-Carlton Hotel.

Purchasing and Stores Committee

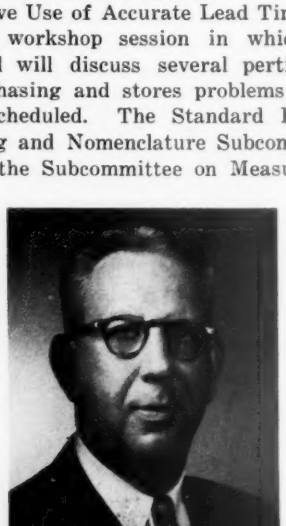
The Purchasing and Stores Committee has as its chairman E. N. SCOTT, Long Island Lighting Co. The vice chairman for stores is T. S. DUNSTAN, Consolidated Edison Co. of New York, and the vice chairman for purchasing is G. H. GALE, Alabama Power Co.

The Standard Packaging and Nomenclature Subcommittee with H. E. HODGSON, Wisconsin Power and Light Co. as chairman, is working with the insulator manufacturers to establish standard packaging for insulators.

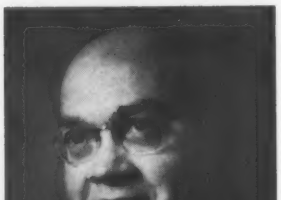
The Committee plans to present at the annual meeting at Hotel William Penn, Pittsburgh, Pa., April 29-May 1, 1957, a number of subjects:

How to Cut Costs in the Issue and Return of Stock Material; Pros and Cons of the Use of Much Wider Competition; Manufacturer's Packaging Techniques, Including Palletization and Disposable Containers; Handling Methods Related to Specific Materials, a specialized continuation of last year's slides showing special handling and storing equipment; and Effective Use of Accurate Lead Time.

A workshop session in which a panel will discuss several pertinent purchasing and stores problems also is scheduled. The Standard Packaging and Nomenclature Subcommittee, the Subcommittee on Measuring Stores Performance and the Fly Ash Subcommittee, all standing subcommittees, will report their progress on these subjects.



LESTER W. FRANK
Chairman of the Rate Research Committee



E. N. SCOTT
Chairman of the Purchasing and Stores Committee

Chairman E. N. SCOTT, a 1923 graduate of Cornell with a degree of Civil Engineer, is Purchasing Manager, Long Island Lighting Co. He joined Long Island after working for E. L. Phillips & Co., contracting and engineering firm for the company. He served successively in the engineering, accounting and stores departments, becoming stores manager in 1951 and purchasing manager in 1954.

Rate Research Committee

The Rate Research Committee, with LESTER W. FRANK of Western Massachusetts Electric Co. serving as chairman, will keep itself informed of developments relating to rates in the electric utility industry in respect to rate changes and trends in rate making. Cooperation with other committees of the Institute on projects of mutual interest will continue.

Task force groups will continue the studies of electric water heating and the fundamentals of rate making and residential load developments.

The committee plans to hold three meetings during the administrative year which will be largely devoted to round-table discussions of current rate problems. Recent rate changes and load studies were the principal subjects at the October meeting.

Chairman LESTER W. FRANK is Director of Rates and Economic Research for Western Massachusetts Electric Co., this year marking his 25th anniversary with that and predecessor companies. Following graduation from Worcester Polytechnic Institute, he joined the meter department of the former United Electric Co. He transferred to the rate department and was subsequently appointed rate engineer and placed in charge of the department. He was appointed to his present post in 1953. Mr. Frank has been a member of the Rate Research Committee for several years, and was vice chairman during the past two years.

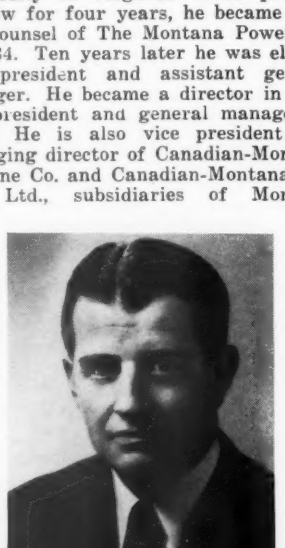
Regulation Committee

Because Congress is not in session and no bills are pending before Congress, the Regulation Committee, whose chairman is J. E. CORETTE of The Montana Power Co., this year will take a broader outlook of the legislative and regulative situations than in past years. It will consider what regulation and legislation are advisable for the customers of the electric utility industry and for the companies that serve those customers, and will report its conclusions to the Board of Directors.

After Congress convenes, the committee will study all legislation of interest to the industry and keep the Board informed of its views on this legislation and on any developments in the regulatory picture.

The committee believes that the real party in interest in matters of both regulation and legislation is the consumer and that this should be remembered by everyone in the electric utility industry.

Chairman J. E. CORETTE, President and General Manager of the Montana Power Co., attended Montana State University and holds a law degree from the University of Virginia. After practicing law for four years, he became general counsel of The Montana Power Co. in 1934. Ten years later he was elected vice president and assistant general manager. He became a director in 1948 and president and general manager in 1952. He is also vice president and managing director of Canadian-Montana Pipeline Co. and Canadian-Montana Gas Co., Ltd., subsidiaries of Montana



J. E. CORETTE
Chairman of the Regulation Committee

Power. Mr. Corette is a director of the EEI as well as of the National Association of Electric Companies and the National Association of Manufacturers.

Research Projects Committee

The Research Projects Committee, composed of personnel from 11 member companies under the chairmanship of EDWIN H. SNYDER, Public Service Electric and Gas Co., will continue to promote and sponsor research work in all phases of activity of the electric utility industry. It acts as a screening board for the review of research proposals which come to it from other Institute committees, technical and professional organizations, educational institutions, and individual scientists and investigators.

The committee's prime objective is to seek out and sponsor research projects which hold promise of direct benefits to the industry. In addition, it selects and recommends to the Board of Directors certain types of projects for support jointly with other organizations, such as ASME, ASTM, AIEE, AGA, and the Engineering Foundation. Illustrative of the wide range of interest covered by the various research projects are the following selected from currently active projects: aluminum conductor fittings, electronic accounting machines specifically adapted to utility company requirements, basic causes of iron oxide deposits in steam and feedwater cycles in high pressure power stations, restoration of normal heart action in cases of electric shock involving ventricular fibrillation.

In preparing its final proposal for Board approval, the Research Projects Committee works closely with Accident Prevention, Accounting, Commercial, and Engineering and Operating Committees which review and pass on the basic merit of projects in their respective fields.

At the close of the last administrative year, the committee received approval to undertake a comprehensive survey of electric utility research being done by member companies. The work is being conducted by HOWARD P. SEELYE who has been retained as Research Consultant. Mr. Seelye, who has been active in EEI work for many years, recently retired from the position of Manager of Engineering of The Detroit Edison Co.

The objectives of this survey are:

EDWIN H. SNYDER
Chairman of the Research Projects Committee

1. Determine the amount and type of research now being conducted or sponsored by EEI member companies, and the more important projects undertaken since 1950.
2. Promote the exchange of information between companies in regard to their present research activities and the results thereof so as to obtain maximum benefits and to minimize duplication of research effort.
3. Secure favorable publicity as appropriate and in good taste so as to emphasize the scope and important results of research work sponsored by the electric industry.

It is believed that the information produced by this survey will be of material aid to the committee in directing the industry's efforts in the field of research.

FRANCIS A. KEANE
Chairman of the Statistical Committee

Chairman EDWIN H. SNYDER is General Manager, Electric Department, at Public Service Electric and Gas Co. He joined Public Service as a cadet engineer in 1923 following his graduation from Lehigh University with an electrical engineering degree. In the electric distribution department until 1937, he was transferred in that year to the electric engineering department and, after serving successively as assistant to the chief engineer and assistant chief engineer, was appointed to his present post in 1950. Mr. Snyder had been a member of the committee which he now heads, and also of the Electrical Equipment Committee. He holds membership in both AIEE and ASME.

Statistical Committee

The Statistical Committee, under the chairmanship of Francis A. Keane, Public Service Electric and Gas Co., will continue this year its efforts to improve the annual EEI *Statistical Bulletin* covering statistics of the electric utility industry in the United States, and the weekly electric output index.

Additional projects which the committee will consider include the study of economic indicators, the development of an industrial power index, and the preparation of a manual for the guidance of management in making intercompany comparisons among investor-owned electric utility companies.

The first meeting of this committee was held October 4-5, in Swampscott, Mass., and the Research and Statistical Committee of the Electric Council of New England participated in the meeting.

Chairman FRANCIS A. KEANE is Assistant to the President, Public Service Electric and Gas Co. He began his career with Public Service in 1923 and has held various positions in the statistical and comptroller's departments of the company. In 1945 he was named assistant comptroller, and in May 1955 was named to his present position. Mr. Keane holds a B.S. degree in civil engineering from New York University, and a master's degree in business administration from the New York University Graduate School.

Tax Policy Committee

The Tax Policy Committee, with C. B. MCMANUS of the Southern Co. as chairman, as its name indicates is a policy committee and concerns itself with the broad aspects of taxation as it affects electric utility companies. This committee is interested not only in taxes that are directly imposed upon privately-owned utility com-

C. B. McMANUS
Chairman of the Tax Policy Committee

panies, but also in such matters as the existing unfairness to customers of privately owned utilities, due to the minor or non-taxation of public bodies, cooperatives and municipalities engaged in the generation, transmission or distribution of electric energy.

This committee is also concerned about the double taxation of corporation dividends, the high income tax rates, the use of tax-free securities for financing electric systems, and the large amount of Federal property which is not subject to taxation by state and local governments. It also attempts to keep informed as to the tax policies of other trade organizations.

Chairman C. B. McMANUS is president and a director of The Southern Co., and a vice president and director of Georgia Power Co. He received a B.S. degree in engineering from Alabama Polytechnic Institute, and then took further technical training with Westinghouse in Pittsburgh. He joined Alabama Power Co. in 1917 as a helper in the substation maintenance crew. Following an interruption for Army service, during which he rose from private to commissioned officer rank, he returned to Alabama and soon became assistant operating engineer. In 1927 he joined Georgia Power Co. and rose to the office of president of that company in 1947. He was elected a director of The Southern Co. in 1948, and in 1950 became president, and president of Georgia Power as well. Mr. McManus served as administrator of the Defense Electric Power Administration in 1951, after which he resumed his duties as president of The Southern Co. He has been active as an officer of a number of engineering and trade associations.

Transportation Committee

The Transportation Committee, with ROY E. HAMEL, The Cleveland Electric Illuminating Co., as chairman, will again this year work jointly with AGA's Automotive and Mobile Equipment Committee.

Subcommittee projects which will be continued through this administrative year include vehicle selection, utilization and retirement; driver training and safe operating practices; and maintenance procedures and facilities. Additional projects will possibly include inter-company comparisons and exchange of statistical data which will enable fleet managers to better compare and evaluate their own operations.

The 15th Joint EEI-AGA Conference on Public Utility Fleet Operation was held May 8-10 in Chicago. Approximately 150 public utility fleet operators and managers from all sections of the nation attended the conference. As is the custom, papers on timely subjects were presented by

ROY E. HAMEL
Chairman of the Transportation Committee

fleet operators and other technical people.

The annual workshop meeting of the joint EEI-AGA Automotive Committee was held September 5-6 in Cleveland. At this meeting, plans were made for the 16th Joint Conference which will be in Houston, Texas in the spring of 1957.

Chairman ROY E. HAMEL, General Foreman of the Transportation and Supplies Department of The Cleveland Electric Illuminating Co., received his electrical engineering schooling at Muskingum and Fenn Colleges. He joined the company in 1936 and served in various capacities in the electrical department. From 1943 to 1946 he was in the Armed Forces, serving with a Signal Co. of the 81st Infantry Division in the South Pacific. Returning to the Illuminating Co., he became safety coordinator, and in 1950 became associated with the transportation and stores phases of the company's operations. Mr. Hamel has served on the Transportation Committee for three years, and is also a member of the Society of Automotive Engineers.

EEI Engineering and Operating Committees

Engineering and Operating Division Executive Committee

The name of the division has been changed this year to "Engineering and Operating Division" in recognition of the importance of both operating and engineering matters in the work of the five engineering committees. The Division Executive Committee, whose chairman this year is C. W. FRANKLIN, Consolidated Edison Co. of New York, Inc., serves as a coordinating agency for the activities of the five engineering committees and deals with engineering matters of a more general nature than those covered by the other committees. The committee membership consists of the chairmen of the five engineering committees and 16 members-at-large.

This committee is responsible for the general guidance of the five engineering committees in policy matters and for correlating their work in order to avoid duplication of effort. The committee has a Codes and Standards Correlating Subcommittee, of which P. H. CHASE, Philadelphia Electric Co., is chairman. This subcommittee considers matters of standardization, particularly where coordination is desirable between different groups of electric company representatives working on related subjects, such as national codes developed under the auspices of the American Standards Association. Under the Committee on Committees' policy, this subcommittee assists the chairman in

giving general direction to all joint industry activities in the field of codes and standards.

Chairman C. W. FRANKLIN has been Electrical Engineer of Consolidated Edison Co. of New York, Inc., since 1940. His entire business career has been spent with Con Edison and its predecessor companies, since graduating from Georgia Institute of Technology in 1915. Mr. Franklin has served in various capacities in the construction, operating, and engineering departments of the company.

Electrical System and Equipment Committee

The Electrical System and Equipment Committee, under the chairmanship of H. E. DEARDORFF, The Dayton Power and Light Co., starts its new year with a new title, having previously been known as the Electrical Equipment Committee. The new name was selected as a result of the broadened scope of the committee which began two years ago on a trial basis, when a vigorous System Planning Subcommittee was added to its organization. This activity, together with others that have been established over a period of years, will constitute the program for the coming year.

The System Engineering and Operation Subcommittee, under the guidance of its new chairman, R. G. MEYERAND, Union Electric Co., will continue its active subjects of intersystem power exchange practices, protective relaying, control and communication systems, and general system operations. The System Planning Subcommittee which, for the past two years, has been operating under the guidance of the System Engineering Subcommittee, will start this year with full subcommittee status, being completely separated from the previous affiliation.

The Subcommittee on Equipment and Station Operation and Maintenance will continue under the chairmanship of R. M. PENNYPACKER, Philadelphia Electric Co. Active subjects sponsored by this group include testing, inspection, and maintenance practices; safety, operation, and fire protection practices; and generator insulation testing and operation. These subjects provide opportunities for the presentation of papers on important phases of electrical system operations which tend to grow more complex as systems become larger, with attendant higher fault duties and the ever increasing size of units of equipment.

The Subcommittee on System and Equipment Troubles, one of the most interesting and timely activities of the committee, will continue under the leadership of D. W. TAYLOR, Public Service Electric and Gas Co. The reviewing of system disturbances, oil fires and apparatus troubles that unfortunately occur from time to time, provide an opportunity to exchange experiences which uncover weaknesses in design or operation, and afford an opportunity to compare notes on the various practices in effect to handle such emergencies with a minimum of disturbance. This interchange of ideas also advances the state of the art of electrical supply by affording a critical review of failures toward the end that modifications in design and operation might be established.

C. W. FRANKLIN
Chairman of the Engineering and Operating Division Executive Committee

The Subcommittee on Equipment and Station Design will have a new chairman, J. W. BENNETT of the Western Massachusetts Electric Co., and will continue to present papers on power station, substation, and large industrial installation design. Other activities will provide the committee with the opportunity to keep the companies advised of changes and improvements in switchboards, switchgear and enclosures, and the progress being made in the design of rotating electrical machinery and transformers. Under the sponsorship of this subcommittee the membership will also be kept advised of the activities of numerous ASA Committees studying standards for electrical equipment, together with other joint committee activities having EEI representation. Among these subjects are power circuit breakers, rotating machinery, transformers and bushings.

The new Subcommittee on System Planning will this year assume full status after a two-year trial operation under the System Engineering and Operation Subcommittee, as previously mentioned. The new chairman is R. G. HOOKE, Public Service Electric and Gas Co. This group has been vigorously studying such subjects as system planning practices, load forecasting, reactive supply and economics of alternate plans, and consists of some 17 members of the main committee, plus two representatives each from the Prime Movers Committee and the Transmission and Distribution Committee. The efforts of this group are becoming quite fruitful and are expected to make a very important contribution to our industry.

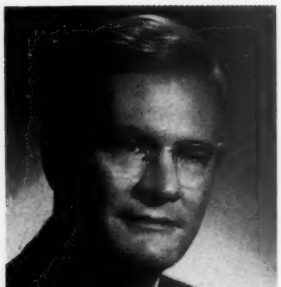
A round-table discussion under the leadership of the committee chairman was started late last year. This idea proved to be quite popular and will be continued with greater emphasis in the coming year.

The first meeting of the year was held in Cleveland on October 15-16, and included an inspection trip to the East Lake Generating Station of The Cleveland Electric Illuminating Co. The midwinter meeting will be held in Boston in February, and the May meeting will be held in Buffalo.

Chairman H. E. DEARDORFF, Vice-President and Chief Engineer of The Dayton Power and Light Co., was graduated from the University of Cincinnati in 1922 with an electrical engineering degree. His employment with DP&L started as a cooperative engineering student in 1917, and he has served the company since then in various capacities. He held many positions in the engineering and operating departments until 1947 when he took charge of system planning activities. In 1950 he became vice-president and chief engineer. Mr. Deardorff is a Fellow of AIEE, a member of the Dayton Chapter of NSPE, and is a past president of the Dayton Engineers' Club. He has been a member of the EEI Electrical System & Equipment Committee since 1940.

Hydraulic Power Committee

The Hydraulic Power Committee, which has L. B. CARD, Public Service Co. of Colorado, as its chairman and E. S. HARRISON, Georgia Power Co., as its vice chairman, devotes its activities to the study of the design, construction, operation and maintenance of all hydraulic and mechanical apparatus and equipment used in hydroelectric plants, including reservoirs, dams, buildings and auxiliary structures or devices. Its interests also include studies and dissemination



H. E. DEARDORFF
Chairman of the Electrical System and Equipment Committee

of information pertaining to weather modification programs and accurate long-range weather forecasting, all of which affect operation of hydroelectric plants. The membership of the committee consists of representatives of utilities and industrial and engineering organizations located throughout the United States.

The committee holds one meeting a year, and the 1956 meeting was held in Chicago in line with the policy of meeting in that city in the even numbered years in conjunction with the joint engineering committee's meetings, and in some other section of the United States in the odd numbered years. The site for the 1957 meeting has not yet been selected.

One of the most productive features of this committee is the session at each meeting devoted to round table discussion of subjects A to Z where Committee members exchange first-hand information.

The Committee currently is undertaking studies of vibration in hydraulic units and pressure regulation and continuing its investigation of weather modification through cloud seeding.

Other problems with which the Committee is concerned include utilization of fly ash in concrete work, trash racks and trash handling, fish ladders, latest developments in hydroelectric equipment including governing mechanisms, remote control of small hydroelectric plants and numerous general operating and maintenance problems.

Chairman L. B. CARD, Superintendent of Hydro Production for Public Service Co. of Colorado, holds BS and MS degrees from the University of Colorado. After service with the Cities Service Co., he joined the Public Service of Colorado in 1935 as an engineer in the Hydro and Transmission Department, and later became hydro engineer dealing with such problems as restoration of concrete dams, water hammer, and penstock design. In 1953 he assumed his present duties. In addition to EEI committee work, he is past chairman of the Rocky Mountain Section of ASME and a member of the Colorado Engineering Council and Colorado Society of Safety Engineers.

Meter and Service Committee

The Meter and Service Committee is planning its programs and activities under the same organization as last year. GEORGE J. YANDA of the Cleveland Electric Illuminating Co. as chairman, and FLOYD A. SALMON of the Central Power and Light Co. as vice chairman, continue these respective assignments into their second year. The committee meets jointly with the AEIC Committee on Metering and Service Methods in the spring and fall of each year. In addition, it meets every other year at Chicago with other EEI Engineering and Operating Division Committees. Increased attention to proper geographical distribution of meeting locations has developed a high degree of interest in development activities. Active members total 55, with an additional 35 correspondents participating.

Its function is to study the methods and technical characteristics of equipment used in the measurement of electrical power and energy and in the introduction of service conductors into buildings; to guide the economical development of such methods and equipment; and to record progress in those fields.

The Executive Committee, in addition to the chairman and vice chairman, is comprised of the following members: H. A. BROWN, Rochester Gas and Electric Corp.; A. T. HIGGINS, Edison Electric Institute; J. S. LINEBACK, The Cincinnati Gas & Electric Co.; T. E. LOBECK, Northern States Power Co.; H. H. MARSH, JR., Duquesne Light Co.; C. V. MOREY, Consolidated Edison Co. of New York, Inc.; J. A. MORRIS, American Gas and Electric Service Corp.; A. W. RAUTH, Consumers Power Co.; G. B. M. ROBERTSON, Philadelphia Electric Co.; F. H. ROGERS, Baltimore Gas and Electric Co.; R. B. SWALLOW, Public Service Electric and Gas Co.; and S. B. VAUGHN, Florida Power Corp.

The committee is comprised of four

L. B. CARD
Chairman of the Hydraulic Power Committee

subcommittees covering Service Equipment, Meters and Metering Equipment, Codes and Rules, and Meter Department Management. Subcommittee chairmen make subject assignments to specific individuals within the subcommittee, who function as subject chairmen on such matters. Rotation of such assignments is provided for in the case of long term studies.

Active subjects of a continuing nature continue at a high level. Among these are corrosion prevention; connections between brass, copper and aluminum; meter seals; new or revised state commission rules involving metering or service matters; new metering methods and developments; and new developments in municipal and state wiring legislation. Views of other EEI committees through mutual discussion of common or related problems are also being obtained.

The committee is actively engaged in revision of previously published *Standards for Watthour Meter Sockets* (MSJ7) and *Indicating Demand Registers* (MSJ4). Recently approved joint standards include *Standards for Watthour Meters* (MSJ10, part 1), *Standards for Thermal Demand Meters* (MSJ5), and *Metering Current Transformers for Low Voltage Circuits* (MSJ2). The second item was adopted as a joint standard following its revision as a Meter Committee standard.

Subjects recently completed include *Economics of Meter Testing* and revision of *Safety Practices for Electrical Metermen.* Other subjects actively engaged in involve the collection of meter performance data with a view toward developing and main-

taining a modern metering system, study of meter department records for purposes of simplification, compilation on scheduling and reporting of demand meter performance for the purpose of recommending a uniform method of reporting, symbols for metering diagrams, EEI publication C10, and the study of current transformer accuracy classes for the purpose of proposing a revision of ASA C57.13 in order to establish a relationship between the continuous thermal rating factor and the accuracy class of a current transformer.

New studies recently added include a proposed high capacity bottom connected meter, standard for polyphase watthour meters (part II, MSJ10), a proposed universal multi-stator watthour meter, proposed tape type demand recorder, methods of handling and storage of meters and equipment, comparison of costs of meter testing and investigation of methods of providing services to residential structures.

The committee will meet twice during the present administrative year, the first time having been at Lafayette, Indiana, September 24-26, 1956. The spring meeting will be held April 24-26, 1957, in St. Petersburg, Fla.

Chairman GEORGE J. YANDA has been Superintendent of Customer Services for The Cleveland Electric Illuminating Co. since 1952. He received his electrical engineering education at Ohio State University and Fenn College, joining the Meter Section of the Customers Service Department in 1925. He has served in various capacities within the department since, with the exception of a brief period as coordinator of Union Relations. He is a member of AIEE, IAEI, and AEIC Committee on Meter and Service Methods. Mr. Yanda has been a member of the Meter and Service Committee since 1948 and has served as vice-chairman prior to becoming chairman.

Prime Movers Committee

The Prime Movers Committee of the EEI has scheduled three three-day meetings for the 1956-1957 season, the first held Oct. 1, 2, 3, 1956, at Minneapolis, Minn.; the second on Feb. 4, 5, 6, 1957 in Columbus, Ohio; and the last on May 6, 7, 8, 1957 at St. Petersburg, Fla. The host companies will be Northern States Power Co. at Minneapolis; Columbus and Southern Ohio Electric Co. and American Gas and Electric Service Corp. at Columbus, and Florida Power Corp., St. Petersburg.

GEORGE J. YANDA
Chairman of the Meter and Service Committee

As in the past the major part of these sessions will be devoted to round table discussion which has become one of the outstanding features of these meetings with more than one hundred topics usually being submitted for consideration. The activities scheduled in conjunction with each meeting will usually follow a pattern that has been found to cover effectively the needs of the Committee. This pattern consists of round table discussion during the session of the first day, subcommittee meetings during the late afternoon and evening of the first day, subcommittee and project reports on the morning of the second day, and continued round table discussion during the afternoon of the second day and morning of the third day. The afternoon of the third day is often devoted to a power station inspection tour.

Officers from last year will carry on for another season. They are: J. M. DRISCOLL, Chairman, Consolidated Edison Co. of New York, Inc.; V. L. STONE, Vice Chairman, Commonwealth Edison Co.; and E. C. DUFFY, Secretary, Long Island Lighting Co.

The Executive Committee membership will be made up of V. F. ESTCOURT, Pacific Gas and Electric Co.; R. W. PARKINSON, Commonwealth Services, Inc.; F. W. ARGUE, Stone and Webster Engineering Corp.; and R. H. MCCUMBER, Rochester Gas and Electric Corp., the latter replacing W. R. LAMOTTE who is retiring from his company and who for years was a very active member of the Prime Movers Committee and had consistently pressed for a free and open interchange on the Committee floor of operating troubles. G. V. WILLIAMSON, Union Electric Co., and W. L. CHADWICK, Southern California Edison Co., the two most recent past chairmen of the Prime Movers Committee, complete the Executive Committee as members ex-officio. Executive Committee sessions are held just prior to each meeting of the main Committee. The actions of the Executive Group greatly expedite the activities of the main Committee and have contributed to more efficient use of Committee meeting time.

Thirteen subcommittees and one task force have been named to assist the Committee in achieving its broad aim which is to increase the mutual knowledge of its members particularly, and the industry generally, in regard to the science of power station designs and operating practices. This purpose is accomplished in large measure by the surveys and studies of the task force and subcommittees presented to the Committee, and by reports on steam power station generation made available by the Committee to the EEI.

The organization of the subcommittees is being designed so that each Committee member serves in at least one group. Several of the subcommittees such as the Turbines and Condensers Subcommittee and the Boilers and Combustion Subcommittee cover areas of wide interest. It is usual practice for these groups to appoint sponsors from their membership to follow particular developments or to undertake special investigations. Other subcommittees with more limited scopes prepare reports under the general authorship of the several members.

The Turbines and Condensers Subcommittee, under the chairmanship of V. F. ESTCOURT, is looking forward to receiving availability information to be compiled in the 1955 Turbine and Boiler Availability Report as a result of revisions to the report forms used for the collection of this data. The 1955 report will emphasize causes of turbine and boiler unavailability.

The largest of the Prime Movers Committee's subcommittees, with a membership of 53, is the Power Station Chemistry Subcommittee. W. L. JACKSON is Chairman of this Subcommittee. This group meets twice each year, usually in September and April. The Subcommittee's activities are divided among the following sections: Corrosion; Water Treatment; Lubrication; Air and Stream Pollution;

Carry-Over; Chemical Cleaning; Analytical Chemistry; Coal Sampling; Furnace Chemistry; Safety; Cooling Tower; Instrumentation; Organization; Editorial.

Another particularly active subcommittee is the relatively new Station Instruments and Controls Subcommittee under the chairmanship of W. WELCH, JR. During the past season this group has issued to the Committee several very interesting reports on matters of particular importance in this field.

With costs, both capital and operating, becoming a matter of more vital interest to Prime Movers Committee members, the Power Station Cost and Performance Data Subcommittee, with E. C. CAWRSE, as chairman has assumed a position of increasing importance. This Subcommittee has issued a number of very interesting reports to the Committee covering both of these cost phases as well as touching on the subject of maintenance costs in power generating plants.

The Prime Movers Committee's one task force has evolved from the Committee's great interest in the extensive and technical subject of metallurgy and piping as applied to central steam generating stations. Formerly this group was organized with subcommittee status, but with the increasing importance of high temperature alloys in the design and operation of modern plants, the group was expanded in 1955 with the inclusion of metallurgical specialists to the present Metallurgy and Piping Task Force.

The Prime Movers Committee's subcommittees for the present year with their respective chairmen are: Air Pollution—W. C. BEATTIE, Consolidated Edison Co. of New York Inc.; Atomic Power—J. N. LANDIS, Bechtel Corp.; Boiler Auxiliaries—S. MOYER, Philadelphia Electric Co.; Boilers and Combustion—R. W. PARKINSON, Commonwealth Services, Inc.; Fuel and Ash Handling—M. D. ENGLE, Pennsylvania Power and Light Co.; Iron Oxide Deposit Research Project Steering Committee—F. W. ARGUE, Stone and Webster Engineering Corp.

Also, Metallurgy and Piping Task Force—E. H. KRIEG, Stone and Webster Engineering Corp.; Oil and Gas Power—J. W. BLAKE, Oklahoma Gas and Electric Co.; Power Station Chemistry—W. L. JACKSON, Public Service Electric & Gas Co.; Power Station Cost and Performance Data—E. C. CAWRSE, The Cleveland Electric Illuminating Co.; Power Station Data—R. P. MOORE, Niagara Mohawk Power Corp.; Power Station Structure and Facilities—C. A. DAUBER, The Cleveland Electric Illuminating Co.; Prime Movers Awards—J. N. LANDIS, Bechtel Corp.; Station Instruments and Controls — W. WELCH JR., Long Island Lighting Co.; Turbines and Condensers—V. F. ESTCOURT, Pacific Gas and Electric Co.

J. M. DRISCOLL
Chairman of the Prime Movers Committee

The rapid development of technology and the continuing attention of civil groups to the location, design and operation of power stations focus increasing emphasis on the Atomic Power Subcommittee and the Fuel and Ash Handling Subcommittee. The Atomic Power Subcommittee has kept the main Committee posted by progress reports at each meeting of the status of Utility Atomic Power Projects and, through one of its members, E. M. PARRISH, General Superintendent Power Stations Dept., Duquesne Light Co., the Committee is planning during the 1957-1958 season to meet in Pittsburgh and, following the meeting to inspect the Shippingport Atomic Power Generating Station. In the not too distant future Committee members will be discussing operating problems, in the Round Table sessions, of the operation of atomic powered plants.

The Fuel and Ash Handling Subcommittee has accepted the assignment to prepare a report for the Committee during the current Committee year on the disposition and utilization of fly ash. This project has been requested by the Engineering and Operating Division Executive Committee. This will be the second report touching on this subject prepared for the Prime Movers Committee by its Fuel and Ash Handling Subcommittee. One of the major responsibilities of this Subcommittee is to keep the main Committee advised of developments concerning fly ash.

A research project of particular interest to the industry has been directed by a Steering Committee under the chairmanship of F. W. ARGUE. It has been undertaken in an effort to define the basic mechanisms controlling iron oxide formation in modern power plant circuits and equipment. The first phase of the project has been performed at the Battelle Memorial Institute during the past two years. The Steering Committee is considering to continue this investigation.

Discussion of the Round Table Agenda will continue to be a primary interest of the members under the chairmanship of V. L. STONE. With the three-day meeting schedule, the officers are looking forward to a more complete coverage of Agenda subjects.

Chairman J. M. DRISCOLL is the Turbine Plant Engineer of the Consolidated Edison Co. of New York, Inc., prior to which he was a production superintendent in charge of turbine and auxiliary operations. After he was graduated from Brown University, he joined Brooklyn Edison's Mechanical Engineering Department. When the company consolidated with Con Edison, he was assistant mechanical engineer. Subsequently he held various positions in procurement, construction, and maintenance functions. He is a member of ASME and for nine years has been active in the EEI Prime Movers Committee, for which he has served as secretary and chairman of the Round Table Discussion Group.

Transmission and Distribution Committee

The function of the Transmission and Distribution Committee under the chairmanship of G. H. FIEDLER, Rochester Gas and Electric Corp., is to guide technical and economic developments and practices and record progress in electric transmission and distribution; to study the broad engineering and economic problems involved in the construction and operation of the transmission and distribution system including the characteristics of utilization equipment; to record progress and encourage continuation of a high degree of service reliability; to develop and publish specifications for material and equipment required for

(*Continued on Page* 354)

Industry Teamwork and Fair Play

By Donald S. Kennedy

President, Edison Electric Institute and President and Chairman of the Board, Oklahoma Gas and Electric Co.

An address before the 47th Annual Convention, Indiana Electric Association, French Lick, Indiana, October 3, 1956

THE National League baseball race of 1956 is now history, but during the past few weeks, I have heard broadcasts of several games. In Milwaukee, the intense interest just about stopped the industrial and commercial life. Over my radio driving along a road in Oklahoma about seven hundred miles away, I could hear the boos almost shake the grandstand when the crowd did not agree with the umpire. What do you think they would have done to the umpire had they believed he was giving preference to the visiting team? Probably he and all of his helpers would have been lynched! Then on Saturday, along with 62,000 other football fans, I yelled a few times to kill the umpire, referee and even the head linesman, because I did not believe they were giving Oklahoma University a square deal in the matter of penalties. Suppose it had been announced over the public address system that "the visiting team has a preferred position and they are not subject to the same strict rules as the home team." Perhaps against North Carolina that would not make such a great difference, but suppose the same thing happened between Oklahoma and Texas. There would be a riot—perhaps a renewal of the Civil War. All of these references have been to games and the officials.

Must Know Rules

Just over a quarter of a century ago, we had the scandal of the Chicago team, a number of whom sold out and earned the name "Black Sox." More recently, a basketball team in the East contrived to keep margins of victory low for professional gambler payoffs. The charges were proved and the team was held in complete contempt. The American sense of fair play had been offended. All of these references were only to games. Now, what does that have to do with the great electric industry which is so near to all of us who are here assembled?

I think this incident demonstrates the instinct, the desire, and moreover the insistence of the American people upon fair play—when they are aware of the rules of the game. It illustrates the value and effectiveness of informed and united protest in the righting of a wrong.

Our whole economy, our business, professional and social life is based upon the tradition and practice of fair play. In government, our Constitution spells out the basic rules of fair play, which Webster defines as "equitable or impartial treatment, a fair or equal chance, justice."

Objective: Fair Play

The great body of our laws, however perfect or imperfect they may be, have fair play as their objective and goal. The constantly evolving changes in legislative acts and in judicial decisions, as well as in athletic rules, are directed in the overall sense toward determination and enforcement of fair play.

Through training from infancy, through a long, long national tradition, from reason, from good will, from religious training, from the desire to do unto others as they would be done by, the people of our country believe in and practice fair play.

None of us is perfect, but the great bulk of people want to do what is right, are strong believers in fair play, and when they know the score, can be depended upon to insist on fair play.

It is that sense of fair play, coupled with the knowledge of its infringement, which will bring about the solution to what has been called the number one problem of the industry—the encroachment of government in the production and sale of electric power.

I do not think it is necessary to discuss with you the growth of subsidized governmental electric power with its long and involved history of evasion and misrepresentation of intent in legislative action and administrative interpretation. It is not necessary to relate how for more than half a century various individuals and tightly knit and allied groups have advocated, propagandized and lobbied for legislation for Federal control, ownership and development of electric power. Nor is it necessary to go into the motives and successes of these individuals and groups working for the nationalization of the country's basic energy sources.

These matters, indeed, have been eloquently and wisely discussed before this Association by my predecessors in the Edison Electric Institute.

No, we have not been unaware of the direct menace of government-subsidized power to the industry and of the greater menace of collectivist doctrine and practice to the life of the American people.

We have made headway in winning public understanding and confidence. Let us build on that—build soundly and strongly! We believe our public relations work by companies and by industry groups has made measurable progress. Let us make that progress more rapid! Let us put more drive behind it!

Knowledge Important

We can also well consider the nature, quality and the results of communications with our fellow man. There is a chain that links knowledge with human conduct. Our brains can only act on the basis of the information with which they are furnished. Possession of information, or the lack of it, has a profound effect on the thoughts, opinions and actions of the individual. It is the basis of all decisions. It determines the correctness of those decisions and so may be said to affect the success and prosperity of the individual.

his company, his community and indeed of his country and its way of life.

Despite the innate sense of fair play which, as I implied at the beginning of this talk, is rooted in knowledge of the rules of the game, all too often the decisions and actions of individuals, groups, and nations are made on little more than opinions, prejudices and emotional responses, which are used as substitutes for facts and information. Many decisions are founded on a lack of information. faulty information or a faulty evaluation of information.

All information must come to us either in the form of a direct, personal experience or through some form of communication. By far the greatest amount is brought into our brains through these means of communications. We know that every advancement of the human race has been founded upon knowledge. It may be said, then, that the human race has advanced only insofar as its means of communications have advanced. Good communications tend to promote the advance; faulty communications tend to hinder it.

War Service Praised

During the 1940's, a second World War was fought. The services of the electric industry in supplying power for the war effort while maintaining normal service to its domestic customers had won unanimous praise and it had gained approval from a large section of fair-minded people.

In the meantime, vast Federal power installations in the Tennessee Valley and the Pacific Northwest had been driven through and put into operation by the Administration then in power.

But the electric industry had again found its voice and definite progress had been made in stemming the tide still swirling and eddying from the 1930's. Ten years ago, the vulnerability of the tax-exempt feature of electric power produced and sold by government agencies was beginning to become apparent, along with the alarming increase in Federal debt.

In 1946, a former United States Senator noted that "if government corporations are to be exempt from tax, in whole or in part, then let the people know just how much their true costs are by adding the tax they would have to pay if they were not subsidized. And, further than that, let the people know just who is required to pay the tax that the government corporations fail to pay."

Effects Seen

In the same year, the then President of the Edison Electric Institute said, and I quote:

"Signs are not wanting that the efforts of utility officials to bring these unfair conditions to the attention of their representatives in government are beginning to have some effect. The sobering effect of our huge Federal debt is causing our legislators to scrutinize appropriations as they have not done in years; and a number of the proposed expenditures for wasteful duplications or unneeded power facilities have lately been drastically cut down or completely eliminated. Bureaucratic habits, built up over a decade, are not, however, easily broken, and the most constant and watchful vigilance on the part of our operating officials is needed to protect our companies from further government raids."

The history of the past ten years is fresh in our minds. We have made astounding growth in physical plant, in enormously expanded service to our customers and in technical application of new concepts in generation and transmission. Confidence has been demonstrated beyond all doubt in that most sensitive and representative of economic barometers—the investors' response to our requirements for funds for expansion.

I am confident we have earned an enviable reputation for good leadership, for progressiveness, for engineering and operating excellence and for technical and commercial advances. We have a history of sound rate policies that today require little or no defense against provocative comparisons or competition.

Our unique record during the war of never being too little, nor too late, and the postwar universal acceptance and dependence upon electric service, have fixed in the public consciousness the adequacy, dependability and the high quality of our service.

In any further summation of the major occurrences in the electric industry during the past two or three decades, we could list first:

The survival of the electric industry from harassment and attacks of the Federal government beginning in the last Twenties and continuing unabated through the next decade, and its subsequent recovery and healthy development. Neither could we overlook:

The dissolution of the holding companies with the subsequent broad-scale development of local control by the operating companies.

The impressive gains in technological progress.

The concurrent and manifold progress in the industry's relations with other industries and with other organizations.

The intelligent and skillfully developed progress in the electrification of industry, and capable and far-seeing studies in load development.

The improvements in the fields of rates and regulations, aided greatly by enlightened dealing with these problems.

Trust Fosters Pooling

The power companies' leadership and far-sightedness in the development of power pooling and interconnection, noteworthy because of the rise in mutual trust and confidence between participating companies.

The improvement in the industry's own understanding of its proper role in society, as exemplified by its willing and helpful participation in community activities, which has further helped to identify it with local welfare and progress.

And last, but not least, the industry's greatly advanced standing in public regard. We know of the great advance in public regard from our own observations and experiences in our operating areas. We know it from the generally friendly and constructive attitude of the newspapers and periodicals of the country. We know it from

the various local and national opinion surveys.

We can feel gratified over the increase in the percentage of people favoring business ownership of their local electric companies which occurred between 1943, the first year of the biennial survey of attitudes toward government ownership made by Opinion Research Corp., and 1955.

In 1943, 52 per cent of those surveyed voted for government operation, and 41 per cent for business. In 1955 only 37 per cent favored government and 56 per cent business operation. Of the 37 per cent favoring government ownership in the 1955 survey, their preferences were: 19 per cent for municipal, 10 per cent for State, and only 8 per cent for Federal ownership.

Opinions Favorable

Central Survey figures over a number of years show approximately two-thirds of the people have favorable opinions on the cost of electric service. These findings are substantiated by surveys of the Opinion Research Corp.

In a public opinion survey on the price aspects of the products of a variety of industries made for the National Electrical Manufacturers Association a few years ago, approximately 64 per cent of adults and 66 per cent of high school students rated the electrical industry as "giving you the most for your money."

With the same question applied to three other prominent industries, the next highest industry ratings averaged 16 per cent, the next 11½ pe cent, and the lowest six per cent.

While these opinions on the cost of electric service applied only to one phase of our business, they do emphasize the effectiveness of wide and continued advertising and publicity. They also sharply point up the weakness of what was long a principal weapon in the phony arsenal of government power proponents.

Nevertheless our opinion surveys indicate great and serious gaps in the knowledge of vitally importan characteristics of cost elements an sale of government-subsidized power as compared with power sold by the investor-owned companies. This is lamentably true in the case of knowledge and effects of the preference clause, and to a lesser degree, of the tax-exempt status of governmental projects.

It is these two aspects of government competition that are the most revealing in the unfairness of governmentally-subsidized power, and consequently the points which most quickly, and simply, dramatize the fair play aspects of the electric power issue.

For this lack of knowledge, particularly on the preference clause, we have ourselves to blame, for it has been only within recent years that we have recognized the potency of appeal to the common sense, wisdom and spirit of fairness and justice of the people.

The extent of the lack of knowledge of the preference clause and the reaction when its nature and import are clarified bear this out in striking manner.

In a series of interviews conducted over the past several years by Central Surveys these findings were obtained:

Among members of rural electric cooperatives in four states—only five per cent of those interviewed knew of the preference status which they were receiving.

Among rural (four states) and urban retail customers (three states) of investor-owned companies, only four per cent of the customers knew of the preference clause.

But the next phase of the survey gives an inspiring demonstration of the value of information in regard to a subject and heavily supports our thesis of the desire for fair play innate in most people when they know the score.

When the basic aspects of the preference clause were explained to those being interviewed, roughly seven to one in both groups expressed themselves against preference.

Here is the specific breakdown:

	Co-op Members	Co. Customers
Know of Preference	5%	4%
Opinions When Informed:		
Support Preference	11	8
Oppose Preference	76	72
No Opinion	13	20

The results of a survey conducted in 1953 by a group of South Dakota newspapers provide another illuminating indication of public attitude toward the preference clause and fair play. Residents of city, town and farm were asked the question, "Do you believe that consumers served by public agencies and cooperatives should be given first chance to receive the power (from Missouri dams) or do you believe all customers, however they are served, should have an equal opportunity to obtain this power?" Eighty-two per cent voted in favor of equal opportunity and only 17 per cent felt that those served by public agencies should have first chance.

Nine out of 10 in the group served by private power companies favored equal distribution compared to seven out of ten in the group now served by the REA, the newspapers noted.

These are significant straws in the wind, whose message of fair play we cannot, we must not, fail to interpret and heed. As Harllee Branch, who spoke to you at last year's meeting in French Lick, wrote recently: "It is a heartening sign that more and more Americans in all parts of the nation are asking themselves: 'Why should I and my neighbors be taxed and otherwise penalized in order that the Federal government may provide underpriced and tax-exempt electric power for a privileged class of citizens or for a favored state or region?'"

20 Per Cent Privileged

And, he added ". . . 80 per cent of the users of electric power in America—those served by the investor-owned industry—are the victims of discriminations in favor of a 20 per cent privileged class served by government-subsidized power agencies. They are beginning to see that the pocketbook and economic opportunities of the 80 per cent are directly and adversely affected. The biggest job of the utility industry, I think, is to get more and more of the 80 per cent of our citizens and their representatives to realize the magnitude of these inequities. . . ."

Since this is our biggest job, it will take the teamwork of all the electric power industry family; that includes

employees, wives, sons, daughters, stockholders and finally customers. Much needs to be done with the wives in information; if my wife learns that I am paying the tax on a mink coat for some other woman, it is quite clear to me that she will display an immediate interest in such a matter. I don't have to tell you that is what our customers are doing for electric users in Tennessee.

New Zeal Needed

Communications and teamwork were discussed recently at Chicago at the Industrial Relations Round Table. The meeting was inspiring. Some of you were there and I know you will agree that the Round Table convinced us that we have not begun either in the matter of industry teamwork or *two* way communications. May I place extra emphasis on *two* way; all the brains are not at the top. We need a new zeal and perhaps it could come from an interpretation of the recent resurgence of programs on sinking of the Titanic.

No less than three times in recent months, the story of the sinking of the Titanic has been re-enacted on television programs. The incident was doubtless one of the most dramatic of our time; but, in my opinion, insufficient emphasis was placed in any of the three portrayals upon an even graver, yet unheeded, peril which exists in the United States today.

You will recall that the Titanic was speeding through North Atlantic waters at a rate of some 22½ knots an hour, a marvelous sea speed for those days. Although the sea at nightfall was calm and smooth, radio reports received at various intervals during the evening had indicated that icebergs were afloat in that general vicinity. It was the maiden voyage of the Titanic and its passengers included some of the most important and wealthiest people in the world. They were smug and comfortable in the knowledge that they were aboard a ship which was "virtually unsinkable" and whose speed was unprecedented. So certain was the captain that this engineering perfection was invulnerable that he paid no attention to the warning of icebergs; and the radio operator, when warned of acute danger less than an hour before the crash, chose to disregard such warnings and even made insulting replies to his would-be savior and shut down his equipment. Of course, as we all know, the Titanic struck the iceberg without warning and the huge "unsinkable" masterpiece of engineering and comfort settled into a watery grave within three hours, snuffing out not only its own life but the lives of more than 1,500 passengers.

A direct parallel of this situation can be drawn with the situation of the United States and the world today. We live in what is supposed to be the most successful type of government the world has ever produced, as witnessed by its industrial and economic advances and its wealth as well as its military might. We, too, are smug and complacent in our feeling that we are invulnerable. The weather is calm, the sea is smooth, and experienced statesmen and politicians from both parties assure us that "we have never had it so good"; that we are winning the cold war; that we have nothing to fear. But the fatal icebergs are still floating out there in the darkness of a careless electorate and an uninformed and unthinking public.

The one great principle to which all Americans have rallied and around which they must rally in the future is that everyone is equal before the law. This means not only that one individual will not be relieved arbitrarily of any burden imposed by law upon everyone, but that in protection under the law and in regard to benefits and services from the government, no individual will be preferred above others. Fair and equal treatment carries no party label. It should need no partisan emphasis, and every member of any American political party should demand that preferential treatment and preferences be eliminated.

We must also face the fact that, while proponents of public power are more on the defensive than in the past, they are still formidable, with the support of active skillful propaganda organizations. We should be vocal in pointing out the unfairness of these preference clauses, and regardless of political party, it

(*Continued on page* 356)

Proceedings Published On Workshop

THE proceedings of the Fourth Utility Management Workshop, annual two-week seminar attended by Utility executives to study management methods as applied to the utility industry, have been published by the Department of Industrial and Management Engineering, Columbia University.

Papers presented by guest lecturers, material developed by Workshop study groups and remarks and observations of the staff are included in the 95-page book.

Has Five Chapters

The Proceedings are in five chapters. The first gives background, purpose, philosophy, plan and history of the Workshop and summarizes achievements of the past few years. Chapter Two pertains to the Executive—What is his job? What should he be like and what is he like? Executive development—How can he be trained and what does it cost—is discussed in Chapter Three. Chapter Four is devoted to morale, productivity and profits and covers problems of group functioning in the industry. The work of the three groups into which the Workshop is divided is summarized in the final chapter of the Columbia University publication.

Copies may be obtained from the Department of Industrial Engineering and Management, Columbia University, New York, N. Y., at $5 each, or in bulk rates, which may be obtained from the publisher.

A Catalog of EEI Publications

is available upon request to:

Edison Electric Institute
420 Lexington Ave.
New York 17, N. Y.

Building for the Future

By Norman R. Sutherland

President and General Manager, Pacific Gas and Electric Co.

Excerpts from an address dedicating Humboldt Bay Power Plant, October 12, 1956

WE of the utility industry are keenly aware of population growth, industrial development and all other advances in our burgeoning economy. By the very nature of our business we have to anticipate growth of demand and build ahead of that demand in order to serve it. Indeed, we nourish growth by maintaining an abundant supply of fuel and power, immediately available at low cost, and by providing good service.

You may be aware of the promotional work our company does to help attract more industry to all Northern and Central California. Thus we not only build ahead of demand to make growth possible but we also devote considerable effort to helping stimulate growth and to sustain it as a dependable and continuing process.

Humboldt County has set a record of notable expansion in the decade since World War II. At the end of 1945, there were 13,500 electric customers in our Humboldt Division. Ten years later, at the end of 1955, there were 33,000 electric customers —an increase of nearly 150 per cent. In the same decade the annual consumption of electric energy in Humboldt Division rose from approximately 44,000,000 kilowatt-hours to almost 300,000,000—an increase of more than 600 per cent.

During that period from war's end to date—less than 11 years—PG&E has expanded its facilities in Humboldt Division with an investment of more than $38.000,000. That investment here has built new capacity, transmission and distribution lines, substations and new and enlarged service facilities for both gas and electricity.

That investment includes only the amount of capital expended to date on the first unit of this new Humboldt Bay Power Plant. The total investment in the plant and its related facilities will be $16,500,000.

Three years ago the growing electric requirements in Humboldt County and the continued growth and development we foresaw at that time brought about our decision to build this plant.

Our faith in the future of this region was evidenced then by our decision to design the plant so that it could be enlarged. As you all know, that precaution in our planning served an almost immediate need, for today, as the first 50,000-KW unit of this plant goes into service, construction already is under way on a second unit of the same capacity. The second unit will be completed and in service within two years.

I avail myself of this opportunity today to reveal to you that as further evidence of our faith that this County will develop new and diversified industries and payrolls, we already are considering plans for ultimate construction of Unit Number 3.

Humboldt Bay Power Plant is the 16th new generating installation PG&E has brought into service since the end of World War II. When these 50,000 kilowatts go on the line today, we will have built 3,064,000 kilowatts of new capacity in the eleven years since V-J day.

Our investment in new facilities during that period exceeds $1,600,-000,000. That is virtually equal to the aggregate investment by industrial firms throughout Northern and Central California during the same period in more than 7,000 new plants or plant expansions. It is more than 42 times the cost of the Golden Gate Bridge. It represents an average investment of about $12,000,000 dollars a month for the 133 months since V-J Day.

This new capacity alone is twice as much as we had in company plants at the end of World War II, giving us today about three times our wartime capacity. Our expansion program is continuing at about the same pace. We now have under construction, or in the active building schedule, 850,000 additional kilowatts, of which 685,000 kilowatts will be completed in the next two years. And further expansion—continuing into the 1960's—is in the planning stage.

Humboldt Bay Power Plant is not the largest in our system, but when its second unit is completed it will be larger than 62 of the 72 PG&E power generating installations in active service.

More important than its size, however, are the purposes the plant will serve. Though it is part of our interconnected electric system, this installation was designed especially for the job it has to do here in Humboldt Division. It was tailor-made to fit local needs.

Our transmission lines will continue to bring power into this area from our systemwide network. That more economical network power will continue to meet local base electric requirements. This plant will supplement the supply coming in over the Trinity lines and will provide reserve capacity to take care of new business as it develops. The second unit will further the latter purpose.

The main tailor-fitting our engineers designed into the plant is an ability to step from five per cent of its generating capability to full capacity in less than two minutes. In case of an emergency, the plant is designed to race to nearly full power in only three seconds.

Thus if storms should disrupt service on one or more of the Trinity lines, which is something we all know is bound to happen occasionally during winter in this area, the new plant will be ready to accelerate to capacity almost instantaneously.

The utility industry is an exciting industry. There always is something new. It may be a new household appliance, like a clothes dryer or a dishwasher; it may be an idea through which energy can be produced more efficiently and at lower cost, or it may be a new discovery in the magic of machine computation.

We are in a scientific era. Electronic, nucleonic and even cosmic

marvels are being unveiled and harnessed. At this inauguration of a new power plant, it is appropriate to report to you the progress we are making in the field of nuclear-electric power generation.

PG&E has been actively engaged in nuclear research and development ever since the Federal Atomic Energy Commission in 1951 first opened the way for American private enterprise to undertake studies for non-military applications of nucleonics. The field theretofore had been cloaked in military secrecy.

We were one of the original companies commissioned to determine the feasibility of generating electricity by use of nuclear fuel. These studies led to our being licensed last year, with seven other associate companies, to build a large-scale atomic plant, with a capacity of 180,000 kilowatts, near Chicago. We and our associates formed Nuclear Power Group, Inc., to undertake the project. The plant is being financed entirely by American private enterprise dollars. It is scheduled for operation in 1960 as a facility of the Commonwealth Edison Co., the utility serving the Chicago area.

The plant will cost $45,000,000—about $15,000,000 more than it would cost to produce the same amount of electric energy in a conventional plant. Thus $30,000,000 is a justifiable cost for commercial operation. Commonwealth is investing that $30,000,000 and will own and operate the plant as part of its system. All the partners, including Commonwealth, are sharing the additional cost of $15,000,000.

For our part of this investment, and by our participation in the research and development, and in the actual construction and operation of a large-scale atomic power plant, we gain experience and know-how that will pay dividends in service to our customers in the future.

Most interesting, perhaps, is our atomic project which will be in operation on the PG&E system by about this time next year. It will be a relatively small plant, but it will be highly significant because it will produce the first all-privately financed nuclear-electric power to be placed in commercial service anywhere.

The plant will be located near Pleasanton, beyond the foothills east of San Francisco Bay. There, at its new atomic laboratory, the General Electric Co. will develop and test new ideas to reduce the cost of nuclear electricity. G-E is building a pilot model of the reactor it has designed for the big nuclear plant at Chicago.

Through a joint arrangement with General Electric, PG&E will install a 5,000-kilowatt turbine-generator and will operate it with the steam output of the reactor. Thus G-E will be enabled to market by-product steam and also reduce the investment in its research project. We will buy the steam at a price justifiably less than the cost of producing it in the plant—and we will be associated in the construction, operation and maintenance of the reactor. Therefore both companies benefit through the partnership and together we will be making important progress in both science and technology.

As our standard of living continues to grow higher, Americans at least double their use of electricity every 10 years. The constantly expanding demand for more electricity—in the home, on the farm and in industry—and the known supplies of fossil fuels—oil, gas and coal—indicate that the appetite for electricity one day will exceed the supply available from conventional plants.

Nuclear power is the answer. There already is available from uranium now in sight more than 25 times as much energy as in all the known deposits of fossil fuels. With every advance today in this atomic field, we are serving a definite future need.

There is nothing different about nuclear electricity itself. A kilowatt-hour of electricity is the same however it may be made—by falling water, fossil fuel or nuclear fuel. Fissioning material generates heat, the heat is used to make steam, and steam under pressure turns the turbine. Heat from burning oil does the same job in this new Humboldt plant. A nuclear reactor, however, differs radically from an oil burner, and there is much to be learned about its design, construction and performance.

Nuclear-electricity is not economic in the United States today. It costs more than electricity manufactured from oil, gas and coal or from water power. Until it is economic, it can be used only to an extent justifiable for developmental purposes. It is not acceptable for a commercial role today, because customers would have to pay more for their electricity, and there is no need for them to do so.

We studied the possibility of making this new Humboldt Bay Plant a nuclear project. For the same generating capacity, however, the indicated cost was prohibitive.

When economic feasibility does come—and it will—we will be ready with the operating experience and the desire to add nuclear plants to our other resources. Nuclear power plants, when they become economic, will supplement but will not replace conventional plants.

Perhaps you have heard the question raised: "Is America behind in the development of atomic-electric power?"

The answer, definitely, is "No!" A brief look at the record will demonstrate that American supremacy is unchallenged. The facts show that our government, the Atomic Energy Commission and American private enterprise have no intention of allowing our supremacy to diminish.

The latest figures available, compiled by the Edison Electric Institute, show that reactors of all types for all purposes, built, under construction or planned anywhere in the world, total 258. Sixty per cent of them are American—a total of 153 in the United States, compared with 41 in the British Commonwealth, 27 in the USSR and 37 in all the other countries combined.

As you know, there are many types of reactors — for submarines, airplanes, electric plants and a number of other purposes. Research, experimentation and operating tests will determine which type or types are most efficient, most workable and most economical for the jobs they are intended to do.

We in the electric business are well on our way to solving the nuclear problems for our industry. And this is a major achievement because it was only two years ago—through the Atomic Energy Act of 1954—that the Congress gave private industry specific latitude in the development of peacetime uses of atomic energy.

Today more than $300,000,000 from individual investors are in-

volved in the planning and construction of atomic-electric plants and related research. Forty-four electric companies are participating in building nine reactor plants with an aggregate capacity of over one million kilowatts. Altogether 118 investor-owned utilities have obtained AEC access permits. These companies are drawing on the electric industry's 75-year experience in producing electricity and serving it to the public.

Ever since electricity has been used commercially, the United States has been the world leader in its development and utilization. The electric utility industry has an outstanding record of meeting all power demands. Nowhere in the world is electricity so plentiful, so reliable and so cheap as in this country. We produce more power than the combined output of Russia, Great Britain, Canada, West Germany, Japan, France, Italy and Sweden. Almost everybody in this country can get electricity and everybody can afford to use it.

There may be many things we need in this country, things in which demand exceeds supply, but electricity is not one of them.

There are places in the world today where people do not have electricity at all. Either there is none to be had or the cost is to too great for public use. Those countries lack either fossil fuel, falling water, modern living standards, technology or industry—or a combination of these and other essential elements.

In some such places, under some circumstances, nuclear-electric power, even at today's high costs, may be commercially feasible. The choice would be between something and nothing. A Model-T Ford is feasible commercial transportation anywhere today if there is no other transportation to be had. It is reasonable, therefore, and probable, that there may be commercial atomic plants in some corners of the world before they become commercially competitive in the United States with our conventional plants.

But that would not mean, by any stretch of the imagination, that the other country was ahead of the United States in the atomic field.

There is much progress to be made before nuclear plants can be given a steady, full-time job in the American electric industry. Such progress is being made and will continue. We're going about it the right way.

We are not in a race to see who gets there first. In fact, the United States is sharing some of our nuclear knowledge on non-military developments with other nations. Our need is for scientific and technological progress which will make nuclear electricity economic and therefore useful.

Among those questioning whether American industry is doing an adequate job in this field, are some recognizable voices, singing recognizable tunes. They are voices which have chanted incessantly for nearly three decades for government ownership of the electric utility industry.

Their chant plays on emotion. When their eyes are on hydroelectric power, they use the high purposes of flood control and conservation to disguise their real objective. Looking at the nuclear-electric field, they have discovered that there is a strong emotional appeal in a fanciful race with the Communists for atomic kilowatts.

They mask out the economic facts of life, and spread alarm as though there were a new heat wave in the cold war. They conveniently forget that industry was permitted into the field just two years ago. They ignore the progress made in that short time. They ignore the fact that our nation's most qualified minds are dedicated to the work, and they take no cognizance of the fact that the millions of investors in American industry have put a tremendous investment to work to develop the non-military potentials of the atom.

These political-power partisans would have the public believe that if another country builds an atom-power plant, under any circumstances, and regardless of its operating efficiency, or whether it operates at all, American industry has fallen behind in the job. To solve their bogus riddle, they advocate that the Federal Government should handle America's nuclear-electric research and development. If the real objectives of these advocates of statism were to be realized, there would be government monopoly of the electric industry in the atomic age.

Of course these advocates are not the only ones who ask questions about the progress we are making. Other people, of good intention, and the public at large want to know what's going on and how we're doing, and they have a right to know. As these projects proceed in construction there will be more and more tangible evidence of progress and less and less opportunity for the conspirators of collectivism to capitalize on phony fears. There is every reason to have faith that the American people will not be misguided.

American industry's full-scale participation assures our continuing lead in nuclear research and development.

You can be confident that the Pacific Gas and Electric Company will continue to do everything that can be done to bring you all the power you want with the best possible service at the lowest possible cost.

Westinghouse Plans NEW Celebration

A VAST advertising and publicity program geared to bring the story of its participation in National Electrical Week next February 10-16 to 50,000,000 Americans has been announced by Westinghouse Electric Corp.

Merrill E. Skinner, chairman of the NEW committee, said the Westinghouse plan is "an outstanding example of the kind of cooperation we are receiving throughout the electrical industry. Other companies with major national advertising programs already have informally indicated their support, and we expect to announce the details of their participation soon."

He said that "such an information program on the national level—plus local community observances staged by suppliers, distributors, dealers, inspectors, manufacturers, contractors, wiremen and electrical leagues —insures success of the second annual observance of the event."

On February 11, Westinghouse's special NEW message on "Studio One" television program is expected to be viewed by nearly 20,000,000 persons. The company's four radio stations will carry spot announcements day and night during the week. The stations are located in key marketing centers with a combined trading area population of 30,000,000.

Management Key Indicators

By A. Paul Thompson

Vice President and Treasurer, Iowa Power and Light Co.

An address before the Missouri Valley Electric Association Accounting Conference, Wichita, Kans., September 20, 1956

ONE very hot summer morning a farmer discovered his horse had wandered away before the day's work had begun. The farmer searched high and low but couldn't find the horse. At lunch time the farmer told his son. As soon as he had finished expressing discontent over the circumstances, the little boy excused himself from the table and quietly made his exit only to reappear in a few minutes walking into the barnyard with the horse trailing behind him. "How did you find him?" his dad asked. The little boy shrugged his shoulders and said, "I asked myself where I would go on a hot summer day if I were a horse and I went there and that's where I found him."

Management can take the cue from the little boy. If we want to know how we are doing or where we are going on a hot summer day or in the middle of a blizzard what is the most likely source of useful information? In the maze of complexities which we too often pride ourselves in understanding, it is possible to lose completely the meaning or significance of our function. If management is lost in the trees where would it naturally turn to gain perspective of the woods? To accounting—that is, if accounting comprehends the larger responsibilities and incorporates modern techniques.

Among the outstanding developments of the past quarter century has been the increasing usefulness of accounting to management and the greater emphasis upon the animate as contrasted to the inanimate factors in business enterprise.

We accountants are faced with a dilemma—shall we continue to worship tradition or are we ready to stretch our thinking beyond what is established and accepted into an area which I will describe for want of a better term as measuring. It will be unfortunate if diversity of conditions and differences in purposes of undertakings should be construed as an argument that no general principles can be applied to measuring performance. To be sure, there is no royal road, no magic formula. Many of us have been literally struggling for years to find handles by which to open the doors to these more advanced techniques. Perhaps one of our difficulties is that we are dealing with many unknowns or a concept involving numerous intangibles. It is not unlike trying to explain the meaning of the term organization or the term management. I have been impressed by the fact that what we know today about nuclear energy was the result of abstract thought. In the beginning, physicists were adrift in the realm of theory without evidence or proof. Yet within the short span of a few years, man is being forced to reappraise values and plans for the future on a basis that staggers the imagination.

Era of the Human Mind

This is an era of scientific advancement, of technological refinements, of electronic computers, but in all this tremendous development let's not overlook the fact that the human mind made the discoveries. Whether in the plant under the guise of automation or in the office in the form of greater mechanization, the result is going to be favorable to more original thinking and less human robotism. Electronic devices are not competing with us, nor are they making the role of an accountant easier, but rather they are serving us, freeing us to think and, I might add, placing a higher premium upon accounting skill.

To approach the problem of understanding performance measurement with other than an open mind will defeat our purpose. Being human we succumb to the expedient. It is natural to seek a quick obvious answer. Measuring as a function of higher accounting is not susceptible to such an approach. It requires perspective and patience. Carl F. Braun, President of C. F. Braun & Co., in an interesting critique presented in 1953 at a meeting of the American Institute of Chemical Engineers, makes reference to three principal barriers accountants must overcome.

The first is identification. Quoting Mr. Braun, "People who have been closely identified with an activity over a long period of time, instinctively tend to defend the existing order of things. And they unconsciously slant facts and marshall mere dogma in support of that order. Their entrenched rituals, practices, conventions, and their century-old habits, added together make up a formidable barrier against reform either from within or without." The second barrier mentioned by Mr. Braun is inbreeding. As he says, "Nothing perhaps keeps a department on its toes and in touch with the realities more than does the recruiting of men from other departments. But in accounting, this movement of personnel from and to other departments reaches almost zero. Accounting thus becomes sealed against new ideas, new points of view, changing needs." The third barrier is limitation of skills, and here Mr. Braun alludes to adherence to traditional accounting methods and the absence of skills in estimating and communication.

It is to the latter that I would focus attention. Unless we begin to see our business through the eyes of the chief executive, the operators, the engineers; until we divorce ourselves from lingo singular to accounting and begin expressing ourselves for understanding by the listener and reader, servility is more certain than leadership.

Each of us has experienced the

frustration of detail and at one time or another come up to the point of wondering where we are going in connection with some project. Believe me, it is common in measuring. Russell Robb, in one of his classic lectures years ago at the Graduate School of Business Administration of Harvard University, made this statement in reference to accounting, records, and statistics: "These furnish the chart and the compass, the sounding lead and the log. They are to show us where we are, where we have come from, where we are tending and how fast, and where the shoals lie, and they can tell us, too, how the craft is working. They must be largely depended upon to acquaint those who are directing undertakings with the progress and with the conditions, and this becomes more marked as organizations become larger and more complex, because it becomes increasingly difficult for those at the top to gather their knowledge from their own observation. It is not only lack of time to observe that this is so, but in the complexity of modern organization a great amount of analysis is necessary, simply to segregate information so that a problem may be clearly presented."

He refers to a course which he took as an undergraduate engineer on "The Precision of Measurements" and the appreciation he developed for the true kind of thoroughness toward the value of attention to what is significant and the elimination as a waste of time and effort of what to the ownership interest in the business is vital to attracting new capital on an economic basis. The ratio of supervisory payroll to total regular payroll in dollars and hours over a period of years will help to indicate the extent of supervision necessary to derive reasonable effectiveness from personnel. This is an Administrative consideration.

In the group of Supervisory Indicators, we find such ratios as man-hours per customer served; dollars of plant in service per customer compared to Kwh sales per customer; operating expenses excluding purchased power, depreciation and taxes, in dollars per customer compared to kilowatt-hour sales per customer; a similar ratio for gas service costs compared to therms sold per customer; maintenance expenses per dollar average plant in service; Btu's per net Kwh generated; customer accounting and collecting expenses in dollars and man-hours per customer; per cent overtime to total payroll hours and dollars, etc. Supervisory Indicators emphasize trends in operation and reflect the effectiveness of equipment utilization and personnel effort. They complement the Administrative Indicators just as operating results relate to policy formation. Management Key Indicators illustrate an approach to measuring that provides perspective.

Illustration Cited

Now, to cite an illustration of the less general and more detailed approach, unit costing of personnel effort is becoming commonplace in the office-clerical type of operations. Growing interest in this area of expense is based on facts and experience. Since 1900 the number of factory workers has increased less than 100 per cent compared to an increase in the white-collar class, the office workers, of over 350 per cent. A war-time survey of a large segment of industry revealed that the number of accounting department employees alone increased 51 per cent in four years. The dollar cost of the services of these employees increased 93 per cent in this period. On the other side of the picture, we know that the Bureau of Labor Statistics Cost of Living Index has more than doubled in the last 10 years and that the incomes of the white-collar group lagged.

After considering such facts the problem of retaining and developing those employees who are contributing most becomes real and important. Controllable expenses, the chief being personnel time, are an excellent source of income. That may sound paradoxical, but assume for a moment an operating income margin of 25 per cent which for some industries is not too unrealistic; that is, operating expenses equivalent to 75 per cent of gross revenues. Then, one dollar saved in operating expenses is equivalent to four dollars of additional revenues so far as the effect on operating income is concerned and, in addition, it eliminates the credit risk and collection expense inherent in the realization of the additional revenues.

It is not enough to recognize the importance of personnel and the untapped potential that exists. How, as a practical matter, can personnel performance be measured? The answer to that question may be found in techniques already familiar to the cost accountant. Basic cost procedure from the incurrence and payment of expense, to the classification by accounts and departmentalization of expense, finally leads up to the problem of finding some way to translate departmental expense into products or services.

A unit by which all expense is divisable presents a likely solution to the problem. What is a unit? Webster defines it as "any determinate amount or quantity as of length, in his course was represented by trivia. Every problem involves many factors, in every undertaking there are many things that affect the result. The idea of measuring is to balance perspective of the whole with the patience for infinite details. The objective is an enlightened interpretation of the facts.

To illustrate my thesis, I will refer to (1) Management Key Indicators which emphasize perspective, comprehension of trends in broad strokes, and (2) measuring personnel performance, which above all requires patience and an almost indefatigable analysis of details.

Management Key Indicators are intended to be no more than the name implies. Their purpose is to encourage introspection. Trend is about all they show. It is difficult, if not unrealistic, to conceive of fixed universal standards as a basis for comparison. Circumstances vary with each company. Geographical location, population density, regulatory climate, among other important factors, influence results. Far from giving final answers, these Indicators simply focus attention where analysis and understanding should be intensified. In working with these Indicators several conclusions seemed to be near axiomatic.

First, there is need to know more

about the direction in which an enterprise is going. Ultimately, this may prove of greater significance than where it is as of any given moment. Secondly, despite all of the fumbling, the preponderance of error in numerous trials, performance is susceptible of measurement. Here it may be necessary to think less in terms of dollars and more in terms of man-hours, property utilization, units of service produced, and their relationships. Third, the preparation and use of such data are separate functions in most organizations and whatever value may be derived from this, or like information, will be governed to a large extent by the operators themselves, those charged with line, as contrasted to staff, responsibilities.

Two Categories Used

In order to facilitate their use, the Indicators have been classified into two categories—Administrative and Supervisory. The Administrative Indicators are slanted primarily toward policy formation and the Supervisory relates to the direct handling of personnel and equipment. The one is primarily for planning and decisions, and the other for guiding the direction of operators. Both are designed to aid in obtaining desired results from the efforts of personnel and the savings of investors. For example, an Administrative Indicator is the Return on Capitalization — the relationship of the income available for servicin debt and equity securities to the total book value of such securities outstanding is the gauge of a utilities' earning ability and important from the standpoint of investment rating and future financing. Another Administrative Indicator is the operating ratio, before and after taxes. Many of these ratios are familiar to you and require no time now to elaborate on them. Perhaps here is one needing emphasis in the light of the tremendous construction job done by the utility industry over the last decade. Twelve-months' increase in gross income in per cent to the increase in average capitalization. Added increments of capital and the return thereon should be consistently favorable both in the company's experience and with competition in the money market. The capital ratios are an important Administrative Indicator. There are recognized ranges within which the various components of the capital structure should be maintained to assure maximum economy in future financing. The margin of common stock earnings to operating revenues is an Administrative Indicator. The stability and adequacy of earnings, time, heat, value adopted as a standard of measurement—a single thing, as a magnitude or number, regarded as an undivided whole." A primary requisite of a true unit is that it must be standard and unchanging. A second consideration is that it should be uniform to facilitate comparisons. Mathematical exactness is generally unnecessary, depending upon the purpose for which the unit is used. A unit of measurement used in astronomy may be incorrect by millions of miles and still serve its purpose. On the other hand, engineering measurements are notably fine due to the need for greater exactness. Many units are available for expressing expenses reflecting primarily personnel services. An illustration of the variety of units applicable to a given operation may be found in the stenographic department of a company. A single letter or a line of type could be used as a unit. The square inch of type could be used. Perhaps the cyclometer is the most accurate method of measuring production and expressing cost in terms of stenographic work. A cyclometer is an instrument attached to a typewriter for recording the number of strokes, but the usefulness of a cyclometer is limited to stenographic work. It becomes advantageous to select a unit which applies to all office, clerical or service operations in order to translate these operations to a common basis and thereby facilitate comparison of the productivity and cost of various unlike types of activity.

Time For All

There is one unit that meets all requirements. It is a unit of time such as a day, an hour, or a minute. The time unit is unchangeable and is subject to accurate comparisons, and of the various time units available, the minute provides a practical basis for measuring personnel performance and developing unit service costs. For convenience, and because of accepted usage, the term "work unit" is defined as one minute of productive effort. There are approximately 120,000 such units in one year per person (60 minutes x 40 hours x 50 weeks). Thus, it is possible to establish a standard of 120,000 work units per person per year, or 10,000 per person per month.

Common Denominator Necessary

Once the common denominator has been found and established, translation of unlike expenses reflecting principally personnel activities for comparison and control becomes not only possible but practicable. The procedure consists of five major steps: First, departmentalizing the organization; second, identifying operating costs and personnel time with the different departments; third, analyzing the work by flow charts or any other equally effective method; fourth, calculating time weights for the individual operations or transactions shown in the work analysis; and fifth, determining the number of personnel required based on the standard time allowances and acting on variations between actual and the predetermined standard. The first two steps are relatively familiar, particularly to those who have well-defined organizations. The third step is reasonably familiar to most service organizations. Sources are available providing ample material on the subjects of organization, staffing and volume statistics.

The most formidable hurdle in the entire procedure for measuring work is determining work unit or time values for the different types of items handled. First, motion study and, second, time study are the recognized routes for accomplishing this objective. A combination of motion and time study produce standard time allowances or work unit values for items reflecting the principal activities. Here again, considerable research has been done; true, this particular branch of management science has been, for the most part, limited to factory operations, even though the same principles are

equally applicable to office operations.

Frank B. and Lillian M. Gilbreth defined motion study as "consisting of dividing work into the most fundamental elements possible; studying these elements separately and in relation to one another; and from these standard elements, when timed, building methods of least waste." The purpose of motion study is to develop operating economies by the elimination of unnecessary movements in work flow. The possibilities of economizing in paper work are just as great as in machine work. Finding the method that requires the fewest steps and provides the greatest smoothness in an office operation is the prerequisite to establishing standards for measuring performance. Some authorities refer to it as "work simplification." You, undoubtedly, are familiar with the Gilbreth symbols that frequently are used for this step, the large circle representing an operation; the small circle, transportation; the square, inspection; the triangle, storage. Frequently the process is referred to as first, operation analysis, and second, methods planning.

Changes Come Slowly

In developing changes, it must be done step by step, slowly and gradually with participation by both workers and supervisors. Refinement of working methods to achieve maximum operating economies is the fundamental objective of motion study. I recall an experience several years ago which illustrates the process.

Some companies maintain their own pension trust records and in preparing the pension trust distribution advice, the following procedure was being used in an actual case: First, the forms were assembled along with the ledger cards; next the form was inserted in a typewriter; third, the amounts were entered by typewriter; next, the form was removed from the typewriter. Then the form was taken to an adding machine, there the figures were entered in the adding machine and totaled. Next, the tape was torn from the roll on the adding machine, then the tape was carried back with the form to the typewriter, the form was inserted again in the typewriter and the total entered on the form by the typewriter and the form finally was removed from the typewriter and stacked for enclosing with the respective check in an envelope.

Operations Reduced

There were, in summary, nine operations — two transportations and one storage. An alert young man in the department wondered why it took so long to do this job and after completing the analysis and consulting with the clerks as he proceeded, the following new procedure was installed to do the same job: The form and ledger cards were assembled, the form was inserted in the adding machine, the figures and total were entered thereon, the form was removed from the adding machine and stacked for enclosing with the respective check in an envelope. The revised procedure involved four operations and one storage, a saving of five operations and two transportations. This is what is meant by motion study or work simplification.

After establishing, through motion study or work simplification, the prescribed pattern for doing a particular job, time study establishes the standard time allowances for the various elements in the job as performed in accordance with the approved procedure. Specifically, the purpose of time study is to determine the number of work units, or the time value, for the various items reflecting the principal activities of personnel. It is the process of weighting items on a time basis.

For repetitive clerical operations it may be done in at least three different ways:

1. Scientifically by tested stopwatch procedure.
2. By observations of experienced supervisors.
3. From manuals of elemental standard unit time values developed by specialists in the management consulting field.

Each method has its advantages and disadvantages. May it suffice to state that there is no single best approach for all circumstances, nor is it necessary to resort to the stopwatch and risk an unfavorable psychological reaction.

There is an increasing awareness on the part of astute analysts that the importance of time study has been overemphasized and that flow charting, or otherwise dissecting jobs in minute detail, in itself produces benefits worth more than the effort required, and leads to knowledge adequate for judging reasonable time intervals necessary to complete the functions studied, assuming personnel quality of at least average competency.

An ordinary time study observation sheet shows at the top the location of the observation, the job to be observed and who is the observer, when he does it, below which heading is usually found several columns, at the top of which are listed the individual elements of the operation or the job. Down the left-hand margins are numbers in sequence from, say, one to 30, representing the individual observations, or the number of samplings or tests. Using a simple illustration, consider the handling of a utility bill payment and assume for our purpose that there are seven principal elements in the job or operation, namely, acceptance, inspecting tender, proving and comparing, paying out cash, receipting customer's record, filing paid receivable stub, and public relations.

Constant, Variable Elements Used

The element "paying out cash" would arise in the instance of the presentation of cash or check in excess of the amount shown on the bill. Now, each of these elements would be listed at the top of the time study sheet, one element for each column. It is essential that the elements be listed in chronological order so that the sequence will follow the normal course of the operation. Both constant and variable elements are included and in sequence.

Points to consider in connection with time study include care in listing all elements, even the make-ready, the delays, the relief periods, the put-away and, particularly, public relations if the operation involves customer contact. Avoid changes in the elements after you have started

the time study, and select an operator who is accustomed to the standard procedure and follow it, one who is experienced but who is not necessarily the most proficient. It helps the analyst if the operator is cooperative and not antagonistic. Often this can be assured by having the supervisor introduce the analyst and prepare the way for the observations. Always encourage on the part of the analyst the keeping of the leadership in the supervisor and retaining the viewpoint of the employee.

80 Per Cent Or Better

In general, work of this type which accounts for 80 per cent or better of the "time spent" is deemed sufficiently satisfactory as proof of the validity of the work unit weight established. Anything approaching the production of approximately 50 work units or minutes of productive effort per hour per employee should prove satisfactory. Any results over 50 may indicate understaffing and any department, or district, or branch office, or other organization division showing an average work unit production of less than 40 per employee per hour should be investigated closely for overstaffing. The whole idea is to recognize merit in a well-supervised group of employees performing a repetitive type of work in accordance with a prescribed procedure to bring other groups up to the highest level and thereby ultimately reduce costs.

It should be pointed out here and now that these two illustrations—the one designed to determine trends, the other specifically directed toward development of economic payroll costs—are only a sampling of measuring techniques. To name others already in use, you will find intercompany performance comparisons, unit costs applicable to areas other than personnel time, as earlier described, and standard costs. Accounting is becoming more a matter of the future than of the past, of recording yesterday's history and experience primarily for the purpose of guiding managements' decisions today and tomorrow.

Among the industries that have found results analysis a contribution to effective management are the chemical, automotive, electrical equipment, oil, banking, insurance and steel; and, I have come across more than a handful of utility companies, varying widely in size, well-advanced in their thinking along these lines.

Performance measurement involves further refinement of cost accounting and control methods. Too frequently this function has been subjected to misinterpretation due, undoubtedly, to a false conception of the term "control." True, the ability to curb and to restrict is inherent in the ability to control. But, also inherent in it is the ability to improve performance and to provide the customer with better service at a lower cost. Great strides have been made in the development of unit costs. They are well established in the factory and they are gaining recognition as a tool in the office. In fact, it can be safely stated that basic procedure for departmentalizing expense is commonplace in most progressive companies regardless of type, but the job of matching costs with income requires more than accurate compilation of costs by departments. Recording costs inflows is largely a matter of exercising care in corralling all expense items and then distributing them in accordance with a classification of accounts and a schedule of departments. Accounting for the outflow of costs, on the other hand, is largely a matter of judgment and interpretation. The one is mechanical, the other analytical. Cost is closely related to effort, and income to accomplishment. Both are related to the final product or service. From the first acquisition of goods and services necessary in any business, costs are traceable through the accounts and departments to the ultimate product or service from which the income is derived.

Measuring is a function of accounting and as such is essentially utilitarian. It is a means to an end. The end is good management and to the extent practical methods of measuring performance serve the needs of alert, intelligent management in controlling operations and carrying out its policy-forming responsibilities, customers, personnel and stockholders benefit.

William B. Goudey

William B. Goudey, pioneer in the development of the electric industry in the Binghamton, N. Y., area and retired vice president and Binghamton Division manager of the New York State Electric & Gas Corp., died recently in Binghamton.

He was 79 years of age.

A director of the company at the time of his death, Mr. Goudey was appointed superintendent of the Binghamton Light, Heat & Power Co., a predecessor of NYSE&G, in 1918. As a tribute to his 28 years of service, the NYSE&G board of directors in 1948 renamed Westover plant Goudey station in honor of the division manager.

He was named vice president and general manager of Binghamton Light, Heat & Power Co. in 1925. He was elected vice president of NYSE&G in 1940 and became a director in 1941.

When the station was renamed for Mr. Goudey, the directors in a resolution said Mr. Goudey was "chiefly responsible for the successful operation and growth of the corporation's services in and around the City of Binghamton."

Born in Nova Scotia

He was born in Sandford, Nova Scotia, and came to this country in 1898. His career in the field of electricity began 58 years ago when he was employed by General Electric Co., Lynn, Mass. In 1906 he became associated with Tri-State Railway & Electric Co., East Liverpool, Ohio. He was transferred to the Beaver County Light Co., Rochester, Pa., in 1912 as district superintendent. In 1915 he joined the West Penn Power Co., Pittsburgh, Pa., and later became manager of its Allegheny Division.

He held this post until coming to Binghamton.

Meter and Service Committee Meeting

By G. J. Yanda, *Chairman*

SEVENTY-FIVE members, correspondents and guests, convened at the Purdue Union Club at Purdue University in Lafayette, Indiana, on September 24-26, 1956 for the joint meeting of the EEI Meter and Service Committee and the AEIC Committee on Metering and Service Methods. The meeting was devoted to the discussion of new developments in meters and metering equipment; development and review of joint industry standards concerning metering; presentation of subcommittee reports; and round-table discussions on the engineering, economic, and operating aspects of revenue metering.

At the Monday morning session, in accordance with established practice, various manufacturers described and displayed new types of meters, metering instrument transformers, and metering accessory equipment. On Monday afternoon, the four subcommittees met independently to discuss the various subjects assigned to their subcommittees and formulate their reports.

Tuesday afternoon was devoted to an inspection tour of the Duncan Electric Manufacturing Co. factory located in Lafayette, Indiana.

Round Table Discussions

W. D. Lindsay led a discussion on the use of variable burden checks on instrument transformers installed for revenue metering. Since there was considerable difference of opinion regarding the value of this type check, and all members showed an interest, it was decided to pursue the investigation further by assigning it as a subject for study by Subcommittee II.

An illustrated discussion on methods of supplying services to large residential structures of ranch type, and rural installations was led by A. W. Rauth. Pictures were shown of large single-phase and polyphase installations in Florida and Texas, as well as the farm service pole commonly used in various areas.

E. E. Diehl described the progress made to date in providing shunting facilities for socket meters. As a result of a lively discussion, the group indicated they desired to use manual type shunting devices for commercial and polyphase installations. However, there was considerable difference of opinion on the value of, and extra hazards involved, in the use of automatic circuit closing devices for the small residential services. It was agreed that the conventional automatic circuit closing device as originally designed was unsatisfactory for present loads.

Con Edison Cited

The practice followed by Consolidated Edison Co. in metering 265/460 volt services was described by C. V. Morey. Normal types of 240 volt "A" base meters are used and, where demand equipment is required, this is designed for operation on 265 volts. Portable standard watthour meters are certified at 265 volts and meters are tested at the same voltage.

An illustrated talk on ultrasonic cleaning of demand registers and the equipment now being used by the Long Island Lighting Co. for this purpose was given by R. M. Grogan. He pointed out that the equipment used seems quite satisfactory, although their experience to date has been brief. He informed the committee that it is not necessary to dismantle the register in order to get it clean.

M. M. Grady described the recently installed centralized meter testing facility used by the Indianapolis Power and Light Co. He discussed the advantages of centralized testing for certain types of areas. A survey conducted by Mr. Grady showed central shop testing, mobile shop testing, and house testing were all being practiced by various companies depending upon which was found to be most economical for their particular operation. Some of the larger companies used a combination of various methods since the territory served included essentially different load densities.

In answer to a question from F. A. Salmon, it appeared that a great many companies are following a practice of reading watthour meters on a bimonthly or quarterly basis, but very few companies read demand meters, even when installed on residential services, on anything but a monthly basis.

V. W. Nass led a discussion on paralleling current transformer secondaries on low voltage, large capacity installations. In the Chicago area, the practice calls for paralleling two sets of current transformers but not three sets. Several members indicated they had installations where several sets of transformers were paralleled and had experienced no difficulty or error in metering.

The matter of installing revenue meters on company poles was discussed briefly by F. H. Rogers. The general consensus was that it was both undesirable and unsafe to install meters on line poles, especially in those cases where any equipment which might require the attention of a lineman was installed.

Presentation of Memory Books

Memory books signed by the members and guests were presented to retiring members W. G. Knickerbocker and E. J. Brown in recognition of their past service to the E. E. I. committee. A similar book was signed and to be presented to F. A. Redding who was not present. Both Mr. Knickerbocker and Mr. Redding were former chairmen, and all three men had served on the committee for many years.

Subcommittee Reports

As chairman of the Subcommittee on Service Equipment, T. E. Lobeck reported that W. H. Farrington is endeavoring to prepare a draft of MSJ-7, *Standards for Watthour Meter Sockets*, which will include all the points discussed on this subject.

S. B. Vaughn, chairman of the Subcommittee on Meters and Metering Equipment, informed the committee that the AEIC-EEI-NEMA Joint Committee on Watthour and Demand Meters was clearing up minor editorial corrections in MSJ-5 *Standards for Thermal Demand Meters*, and Part I of MSJ-10, *Standards for Single Phase Watthour Meters;* these standards have been approved by both the meter committees and the joint committee. C. V. Morey dis-

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Engineering Committees

(*Continued from page* 340)

G. H. FIEDLER
Chairman of the Transmission and Distribution Committee

construction and operation; to study the selection and training of personnel; and to study the interests of electric power systems in relation to those of other wire-using systems.

The following subcommittees provide a general subdivision of the committee and function to assist the Chairman in prosecuting activities in their respective categories. Each prepares the program for the session on its category for Committee meetings and organizes and supervises task forces under its jurisdiction:

1. The Standards and Specifications Subcommittee is sponsored by M. H. POWELL, Public Service Co. of Colorado. Task forces under this subcommittee develop standards and specifications for line hardware, timber products, aluminum conductor fittings, aluminum conductor compression connector tools and connectors for underground cable and cable accessories. The task force groups meet the day before the regular committee meets and work with manufacturers to prepare industry specifications.

The standardization of many other transmission and distribution items carried out by joint industry committees are kept under review through reports by liaison representatives. Included are those on transformers, street lighting equipment, automatic circuit reclosers and distribution cutouts and power fuse standards.

2. The General Engineering Subcommittee continues under the chairmanship of DAVID BURNS, The Detroit Edison Co. This group is concerned with higher secondary voltages, short service interruptions, communications, joint use and utilization equipment. Special attention will be given to electrical characteristics of residential and commercial packaged air-conditioners.

The subcommittee is continuing the study of distribution system loadings, possible design of distribution transformers of the future, application of capacitors, and the joint use of wood pole lines. Liaison is also maintained with other committees, particularly the Systems Planning Subcommittee of the Electrical Systems and Equipment Committee, and the EEI/Bell System Joint Committee on Plant Coordination.

3. The Overhead Subcommittee is under the chairmanship of H. L. LIVINGOOD, New York State Electric and Gas Corp. This group is concerned with mutual assistance between utilities, and current problems and practices in the construction, operation and maintenance of the overhead transmission and distribution system.

Much progress has been made by the Mutual Assistance Task Force and most of the companies represented on the Committee are participating in a roster of personnel to contact for emergency assistance.

4. The Underground Subcommittee is under the chairmanship of T. C. DUNCAN, Consolidated Edison Co. of New York, Inc. Work on the *Underground Systems Reference Book*, under the editorship of J. A. PULSFORD, is nearing completion.

This subcommittee considers current problems and practices, such as loading of underground cables and equipment, new developments in synthetic insulations, cathodic protection, fault location, and detection of leaks in gas filled cables. The preparation of network and cable operation reports will be continued.

5. The Safety Subcommittee under the chairmanship of W. L. WITTE, Baltimore Gas and Electric Co., is responsible for the consideration and discussion of accident prevention problems and safety activity. This group maintains liaison with the Accident Prevention Committee.

Various research projects sponsored by the committee are reported through subcommittees directly concerned. These projects include Fundamental Research on Aluminum Conductor Fittings, Soil Thermal Resistivity Research, and the ASTM Wood Pole Research Program.

The Committee scheduled three meetings—October meeting, Buffalo; winter, Cincinnati, February; spring, in Kansas City, May.

Chairman G. H. FIEDLER, General Superintendent of Electric Division, Rochester Gas and Electric Corp., is a graduate of Cornell University and is a registered professional engineer of New York State. He joined this company in 1921 in the Distribution Engineering Department. He has been Distribution Engineer, Assistant Superintendent and Superintendent of the Electric Distribution Department. He has served on the Transmission and Distribution Committee of Edison Electric Institute since 1934. He is a member of the American Institute of Electrical Engineers and also the Insulated Conductors Committee.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

EDISON ELECTRIC INSTITUTE BULLETIN, published monthly at Philadelphia, Pa., for October, 1956.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, EDISON ELECTRIC INSTITUTE, 420 Lexington Avenue, New York City 17; Editor, Wilgar Coleman, 420 Lexington Ave., New York City 17; Managing Editor, none; Business Manager, none.

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3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for which such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

WILGAR COLEMAN, Editor

Sworn to and subscribed before me this 16th day of October, 1956.
(Seal) MARY L. COONEY,

Notary Public, State of New York, (My commission expires March 30, 1957.)

Personals

George H. Fiedler has been promoted to General Superintendent of the Electric Division, Rochester Gas and Electric Corp. At the same time, **Howard A. Brown** was appointed Superintendent of the Electric Distribution Department of the Electric Division, succeeding Mr. Fiedler. **Edward J. Nelson** was named Superintendent of Electric Load Research and Planning, succeeding **Harvey Klumb**, who has retired.

Mr. Fiedler was graduated from Cornell in 1921 and joined RG&E as a cadet engineer. He was appointed Superintendent of Electric Distribution in 1949. Active in national electric organizations, Mr. Fiedler was on many EEI committees, publishing several technical papers on industry problems. He is presently Chairman of EEI's Transmission and Distribution Committee.

Newly elected secretary of Washington Water Power Co. is **Robert D. Yoemans,** Seattle attorney and formerly a member of the Washington Public Service Commission. He succeeds **Benjamin J. Lindsay,** secretary since 1944, who was retired Sept. 30. Lindsay also was property agent. Yoemans, a graduate of University of Washington with degrees in law and in science, was engaged in private law practice from 1939 until his 1953 appointment by Gov. Arthur B. Langlie to Washington State PSC. There he served as a member of the executive committee of the National Association of Railroad and Utility Commissioners, and as a member of the special committee on legislation. He has also devoted considerable time to the public utilities section of the American Bar Association.

Robert D. Elliott, C. H. Davis, and **Leslie Burford,** have been elected Vice Presidents of Dallas Power & Light Co. **E. W. Rogers** has been named chief engineer.

A graduate of Agricultural & Mechanical College of Texas with a degree in electrical engineering, Mr. Elliott joined DP&L in 1920 after service in World War I. He has served in various capacities in the engineering department and since 1942 has been chief engineer.

Mr. Davis joined DP&L in 1922 after he was graduated from Texas A & M. He has been in the utility's plant department during all his service, and has been superintendent of power plants since 1933.

Mr. Burford attended Austin College and the University of Texas. He has been with DP&L nearly 20 years, in the rate, commercial and distribution departments. For the past 13 years he has been head of the latter department.

Also a 1922 graduate of Texas A & M, Mr. Rogers had worked for DP&L during one summer and joined the company full time after graduation. He has served continuously in DP&L's engineering department, and has been assistant head of the department for the past nine years.

William V. Holik has been elected President and a Director of El Paso Electric Co. to succeed the late **F. Carter Womack.** Mr. Holik joined the utility in 1920 following his graduation from the Agricultural and Mechanical College of Texas with an electrical engineering degree. In 1922 he joined Stone & Webster Engineering Corp., and the following year went to the Blackstone Valley Gas & Electric Co. He was with that company until 1926 when he became associated with Gulf States Utilities Co. From 1935 to 1942 he was with Virginia Electric and Power Co., rejoining El Paso Electric Co. in the latter year. He later served as general manager and vice president before being named executive vice president earlier this year.

F. J. Schneider has been appointed Operating Superintendent of Electric Operations for the central and northern New York areas of Niagara Mohawk Power Corp. He succeeds **J. Leo Welch** whose appointment as vice president of operations for the company was announced recently. An electrical engineering graduate of Clarkson College, Mr. Schneider began his utility career as a foreman in the construction department of a predecessor of Niagara Mohawk. He served in various other engineering capacities until 1953 when he was named assistant to the general superintendent of electric operations. The following year he was made assistant operating superintendent, the position he

FCC Rehearing Urged By Utilities Group

THE Executive Council of the National Committee for Utilities at a recent meeting asked its chairman, T. G. Humphreys, Jr., to petition Federal Communications Commission for a rehearing and stay of Order in Docket 11435 making Communication Common Carriers eligible in the Power Radio Service for stations used in construction and maintenance Common Carrier plant. The council belives that such stations should not be made eligible in the Power Radio Service, although in full agreement that Common Carriers should be authorized to operate stations for the stated purpose. It will be suggested that a new subpart be added to Part 11 of Commission's Rules establishing a new service in which Carriers would be eligible for stations to be used for construction and maintenance Common Carrier plant.

Channel Splitting Needed

The council also directed that comments be sent to the FCC on the proposed Order in Docket 11253 (channel splitting), indicating acceptance of the proposed split in the 152-162 MC Band with technical standards as proposed to make operation in the same area possible with 30 KC separation. Comments will urge reconsideration of the proposal to leave the present 40 KC channels in 30-50 MC Band unchanged even though recognizing the problems which may arise from foreign and domestic use of forward scatter techniques in this band. Comments will suggest that the increased number of assignable channels which may be obtained by splitting are so badly needed that further consideration should be given to this plan by the Federal Communications Commission, the Council said.

held at the time of his new promotion.

Edward L. Shutts, President and a Director of Iowa Southern Utilities Co. for the past 19 years, has been elected to the newly created post of Chairman of the Board. **Harold L. Mann** succeeds Mr. Shutts as President, and **Robert W. Greenleaf** becomes Executive Vice President. As chairman, Mr. Shutts will continue to be the company's chief executive officer, responsible for overall affairs. He has held responsible positions with the utility for 40 years, having been auditor and assistant secretary prior to becoming president and treasurer in 1937. Mr. Mann's long association with the utility industry began when he joined the Burlington Railway and Light Co. in 1916. In 1925 that company was acquired by ISU. He became assistant to the president in 1946, was later named executive vice president, and became a director in 1950.

Having a broad background in electric utility experience, Mr. Greenleaf joined ISU in 1952 as a vice president. He became a member of the Board of Directors in 1954, and later was named vice president and treasurer. At the present time, he is serving as second vice president of the Iowa Utilities Association.

Rochester Gas and Electric Corp. has announced the appointment of **R. Dewitt Pike** as Director of the employee relations department. Following his graduation from the University of Rochester in 1927 with a B.S. in mechanical engineering, Mr. Pike joined RG&E as a cadet engineer in the industrial sales department. After a series of promotions he became, in 1950, manager of the commercial and industrial sales departments. He was named general sales manager in 1952, and the following year became superintendent of employee relations. Active in several professional organizations, Mr. Pike is a past chairman of Central New York ASRE, and a member of the New York State Society of Professional Engineers, Rochester Engineering Society, Chamber of Commerce and the EEI Industrial Relations Committee.

Jack A. Wright has joined The Washington Water Power Co. as Special Projects Engineer. He attended West Texas State College and the University of Washington. For 10 years he was associated with Pudget Sound Power & Light Co., leaving that company in 1946 to join Tidewater Power Co. in North Carolina. When Tidewater merged with Carolina Power & Light Co. in 1952, he was transferred to the latter organization as a system planning engineer. In his new post with WWP he will be concerned with the expanded construction program of the company.

Walter C. Beckjord, President of The Cincinnati Gas & Electric Co., received the annual Dow Jones-*Wall Street Journal* personalized award. Each year a small group of men who have individually or through corporate relationship "expressed the dynamic characteristics of our great American economy" receives these awards. Larry Benson of *Wall Street Journal* said: "CG&E has for a number of decades been a constructive and leading force in the geographical region which it serves and also in the business world at large. Mr. Beckjord has fulfilled not only the functions that his corporate identity demand so of him, but also is recognized as one of the most outstanding leaders of the Ohio Valley community."

Meter, Service Committee

(*Continued from page* 353)

cussed the advantages of adopting one general purpose two-stator watthour meter for metering all polyphase loads; he pointed out this is both technically and economically feasible.

The report of Subcommittee III, Codes and Rules, was presented by its chairman, A. W. Rauth. A standard form for reporting on accuracy of watthour meters developed by G. F. Austin was approved by the Committee. Members were asked to submit 1956 data if available, but in any event data for 1957. The committee approved a suggested revision of ASA C-57.13 describing accuracy requirements for metering current transformers at high overloads which was prepared by L. Janz for the group.

J. A. Morris, Chairman of the Subcommittee on Meter Department Management, reported that the study regarding mechanized methods of keeping meter department records was continuing. W. G. Knickerbocker informed the committee that the booklet *Safety Practices for Electric Metermen* was complete and in process of being printed. The third draft of *Symbols for Metering Diagrams* was discussed in some detail by G. A. Palmer.

Teamwork, Fair Play

(*Continued from page* 344)

should be accepted as a principle of American fair play that preferential treatment cannot be tolerated. So we must remind all Americans that every evil that favoritism fosters is implanted in the preferential treatment of preference customers in the sale of government-generated electric energy.

The problem will be on the high-road to solution when people all over the country have their answers to these two questions: 1—Where is the justification for the discriminations of the preference clause by the Federal government among American citizens? 2—Why shouldn't power consumers in public power distribution areas contribute to the support of the Federal government through taxes on their power business, just as the customers of investor-owned power companies are called upon to support it?

We should form a phalanx against the inroads of this unfair philosophy lest it contaminate other elements of our citizenry who would, if they recognized it, reject it because of its essential repugnance to our basic beliefs. This takes teamwork within and publicity outside the industry.

Thus we will awaken the innate characteristics of Americans for fair play. We must show them the eroding effects of the preference clauses. We must convince them that preference in one case can become preference in other cases, and it is their fight as well as ours. These legalized, malignant growths should be eliminated from our statutes, and we should be done with such un-American preferences and tax exemptions.

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ACCOUNTING

Accounting Division Executive, R. G. SCHNEIDER.....Virginia Electric and Power Co., Richmond, Va.
Coordinator of Customer Activities Group, B. J. MCMILLEN.....The Cincinnati Gas & Electric Co., Cincinnati, Ohio
Customer Accounting, A. B. WILSON.....Georgia Power Co., Atlanta, Ga.
Customer Collections, W. E. TRAVIS.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
Customer Relations, J. W. KEHOE.....Commonwealth Edison Co., Chicago, Ill.
Coordinator of General Activities Group, A. P. THOMPSON.....Iowa Power and Light Co., Des Moines, Iowa
Depreciation Accounting, P. K. READ.....New York State Electric & Gas Corp., Ithaca, N. Y.
General Accounting, A. T. EMMONS.....West Penn Power Co., Greensburg, Pa.
Internal Auditing, R. E. TATE.....Kansas Gas and Electric Co., Wichita, Kans.
Plant Accounting and Property Records, A. C. HERRON.....Florida Power Corp., St. Petersburg, Fla.
Taxation Accounting, R. J. VAN ESS.....Consumers Power Co., Jackson, Mich.
Coordinator of Special Activities Group, J. D. ELLIOTT.....The Detroit Edison Co., Detroit, Mich.
Accounting Developments Service, A. H. KERN.....Alabama Power Co., Birmingham, Ala.
Accounting Employee Relations, J. F. MCCAHON.....Philadelphia Electric Co., Philadelphia, Pa.
Application of Accounting Principles, R. R. FORTUNE.....Pennsylvania Power & Light Co., Allentown, Pa.
Electronic Accounting Machine Development, RUSSELL BRITT.....Wisconsin Electric Power Co., Milwaukee, Wis.
Uniform System of Accounts, P. R. LAWSON.....Pennsylvania Electric Co., Johnstown, Pa.

COMMERCIAL

Commercial Division Executive, T. O. MCQUISTON.....Metropolitan Edison Co., Reading, Pa.
Commercial Sales Group, R. I. BULL.....Ohio Power Co., Canton, Ohio
Farm Group, M. O. WHITHED.....Atlantic City Electric Co., Atlantic City, N. J.
Industrial Power & Heating Group, F. E. Wiatt.....The Cincinnati Gas & Electric Co., Cincinnati, Ohio
Residential Group, ROBERT L. COE.....Union Electric Co., St. Louis, Mo.
Special Services Group, B. L. PALM.....Central Illinois Public Service Co., Springfield, Ill.

ENGINEERING

Engineering & Operating Division Executive, C. W. FRANKLIN..Consolidated Edison Co. of N. Y., Inc., New York, N. Y.
Electrical System & Equipment, H. E. DEARDORFF.....The Dayton Power and Light Co., Dayton, Ohio
Hydraulic Power, L. B. CARD.....Public Service Co. of Colorado, Denver, Colo.
Meter & Service, G. J. YANDA.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
Prime Movers, J. M. DRISCOLL.....Consolidated Edison Co. of N. Y., Inc., New York, N. Y.
Transmission & Distribution, G. H. FIEDLER.....Rochester Gas and Electric Corp., Rochester, N. Y.

GENERAL

General Division Executive, J. W. MCAFEE.....Union Electric Co., St. Louis, Mo.
Accident Prevention, R. W. WHITE.....Pacific Gas and Electric Co., San Francisco, Calif.
Area Development, J. R. FREDERICK.....Wisconsin Power & Light Co., Madison Wis.
Atomic Power, E. H. DIXON.....Middle South Utilities Inc., New York, N. Y.
Awards, G. W. OUSLER.....Duquesne Light Co., Pittsburgh, Pa.
Electric Power Survey, A. S. GRISWOLD.....The Detroit Edison Co., Detroit, Mich.
Financing & Investor Relations, W. J. ROSE.....American Gas and Electric Co., New York, N. Y.
Industrial Relations, J. C. ARNELL.....Consolidated Edison Co. of N. Y., Inc., New York, N. Y.
Insurance, R. D. CONSTABLE.....Niagara Mohawk Power Corp., Syracuse, N. Y.
Legal, J. M. KEEGAN.....Consolidated Edison Co. of N. Y., Inc., New York, N. Y.
Membership, E. S. THOMPSON.....The West Penn Electric Co. (Inc.), New York, N. Y.
Purchasing & Stores, E. N. SCOTT.....Long Island Lighting Co., Hicksville, N. Y.
Rate Research, L. W. FRANK.....Western Massachusetts Electric Co., Springfield, Mass.
Regulation, J. E. CORETTE.....The Montana Power Co., Butte, Mont.
Research Projects, E. H. SNYDER.....Public Service Electric and Gas Co., Newark, N. J.
Statistical, F. A. KEANE.....Public Service Electric and Gas Co., Newark, N. J.
Tax Policy, C. B. MCMANUS.....The Southern Co., Inc., Atlanta, Ga.
Technical Assistance for Overseas Visitors, HARVEY BUMGARDNER.....The Detroit Edison Co., Detroit, Mich.
Transportation, R. E. HAMEL.....The Cleveland Electric Illuminating Co., Cleveland, Ohio